1 Course Details

1.1 Calendar Description

This course is designed to evaluate basic and applied poultry nutrition. Students will learn nutrient requirements of poultry, feeding value of ingredients used in poultry feed formulation and how feeding affects the environment, growth, reproduction, health, and composition of poultry products for human consumption.

Pre-Requisites: ANSC*3120

1.2 Course Description

The course is designed to evaluate the nutrient requirements of poultry, the feeding value of ingredients used in poultry feed formulation and how feeding affects poultry growth and reproduction, health and composition of poultry products for human consumption.

1.3 Timetable

Timetable is subject to change. Please see WebAdvisor for the latest information.

Class Schedule and Location: Tuesdays and Thursdays 10:00-11:15; Virtual

COVID-19 Disclaimer: please be aware that the information on course delivery, accessibility and examinations presented in this outline were developed based on current University
guidelines. However, due to the continuously evolving situation and resulting changes in public health recommendations, the format and delivery of this course may be revised with limited notice.

1.4 Final Exam
None

2 Instructional Support

**Lectures** will be delivered synchronously on Tuesdays and Thursdays 10:00-11:20 AM via integrated zoom in courselink. Only the host (E.Kiarie) and instructor/presenter (if GTA or guest lecturer) will have access to video and audio tools. The students will have access to the chat function for questions/comments related to the materials being delivered. The last 10 minutes of the lecture will be used to address questions raised via chat function. Proceedings will be recorded and a link for video and audio recordings will be available under "cloud recordings tab".

**Communicating with Instructor/GTA**

During the course, your instructor will interact with you on various course matters on the course website using the following ways of communication:

- **Announcements**: The instructor and GTA will use **Announcements** on the Course Home page to provide you with course reminders and updates. Please check this section frequently for course updates from your instructor.
- **Ask Your Instructor Discussion**: Use this discussion forum to ask questions of instructor about content or course-related issues with which you are unfamiliar. If you encounter difficulties, the instructor is here to help you. Please post general course-related questions to the discussion forum so that all students have an opportunity to review the response. To access this discussion forum, select **Discussions** from the **Tools** dropdown menu.
- **Email**: If you have a conflict that prevents you from completing course
requirements, or have a question concerning a personal matter, you can send the instructor a private message by email. The instructor will attempt to respond to your email within 24 hours.

- **Video Call:** If you have a complex question you would like to discuss with instructor or GTA, you may book a video meeting on Microsoft Teams. Video meetings depend on the availability and are booked on a first come first served basis.

### 2.1 Instructional Support Team

- **Instructor:** Elijah Kiarie  
  - **Email:** ekiarie@uoguelph.ca  
  - **Office:** Virtual: MS teams  
  - **Office Hours:** Students are asked to email for request a virtual meeting; the instructor will then send out an invitation for a virtual meeting via Microsoft Teams

### 2.2 Teaching Assistants

- **Teaching Assistant (GTA):** Aizwarya "Ash" Thanabalan PhD student  
  - **Email:** athanaba@uoguelph.ca  
  - **Office:** MS Teams  
  - **Office Hours:** Students are asked to email for request a virtual meeting; the GTA will then send out an invitation for a virtual meeting via Microsoft Teams

### 3 Learning Resources

#### Technical Skills

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); and
• Perform online research using various search engines (e.g., Google) and library databases.

3.1 Required Resources

Course Technologies and Technical Support (Software)

This course will use a variety of technologies including:

• CourseLink (main classroom)
• Zoom integrated in CourseLink
• MS Teams (via Office 365)
• Respondus LockDown Browser
• Feed formulation software

To help ensure you have the best learning experience possible, please review the list of system and software requirements. https://opened.uoguelph.ca/student-resources/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 D2L website to review the Brightspace privacy statement and Brightspace Learning Environment web 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

Zoom

This course will use Zoom for lectures. Check your system requirements to ensure you will be able to participate.

https://opened.uoguelph.ca/student-resources/system-and-software-requirements

MS Teams (via Office 365)

Office 365 Teams is a collaboration service that provides shared conversation spaces to help teams coordinate and communicate information. This course will use Teams for one on one meetings with your Instructor. It is recommended that you use the desktop version of Teams. As a student you are responsible for learning how to use Teams and it’s features.

For Teams Support visit the CCS website for more information.
https://www.uoguelph.ca/ccs/services/office365/teams

Feed formulation software

Details of use and installation will be provided in form of guidelines associated with feed formulation lab

3.2 Recommended Resources

Poultry nutrition (Textbook)
1. S. Leeson and J.D. Summers Commercial Poultry Nutrition
2. T. W. Perry, A. E. Cullison and R. S. Lowrey. Feed & Feedings

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

As a student, you have access to the University of Guelph’s library collection, including both 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.

If you are studying off campus and would like to access the library’s electronic resources, use the Off Campus Login and login using your Single Sign On credentials or using your last name and library barcode.

https://www.lib.uoguelph.ca/

https://www.lib.uoguelph.ca/campus-login

3.3 Additional Resources

Peer Reviewed Journals (Other)
Poultry Science
4 Learning Outcomes

Understand nutrients requirements for poultry and feeding strategies used in raising poultry for meat and egg production

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Appreciate anatomical and physiological factors that influences feeding and nutrient requirements in poultry
2. Understand nutrients requirements for poultry and feeding strategies used in raising poultry for meat and egg production
3. Understand feedstuffs used in poultry feeding, their evaluation and potential limitations, processing and complete feed manufacture
4. Appreciate application of least cost feed formulation in the development of poultry feeding program
5. Appreciate emerging areas of interest and concern in poultry feeding and nutrition.
6. Critically evaluate the scientific and technical literature related to poultry feeding and nutrition.
7. Demonstrate proficiency on personal and professional integrity by respecting diverse points of view and the intellectual contribution of others in a group discussion

5 Teaching and Learning Activities

5.1 Lecture

Thu, Sep 9

Topics: Course introduction
References: E. Kiarie

Tue, Sep 14

Topics: Avian digestive tract anatomy and physiology

References: E. Kiarie

Thu, Sep 16

Topics: Nutrients and anti-nutrients, nutrient availability I

References: E. Kiarie

Tue, Sep 21

Topics: Nutrients and anti-nutrients, nutrient availability II

References: E. Kiarie

Tue, Sep 28

Topics: Feed ingredient I

A. Thanabalan

Thu, Sep 30

Topics: Feed ingredients II

References: M. Kithama

Tue, Oct 5

Topics: Feed manufacturing: processing, formulation I

E. Kiarie

Thu, Oct 7
Feed manufacturing: processing, formulation  

E. Kiarie

Tue, Oct 12
Topics: NO CLASSES-Fall Study Break

Thu, Oct 14
Topics: Application of *in ovo* technology in poultry production

References: Dr. Ernest Gasarabwe, Zoetis Canada Inc

Tue, Oct 19
Topics: Integrated broiler chickens nutrition

References: Ms. Lisa Hodgins, Newlife mills

Thu, Oct 21
Topics: Integrated broiler chickens nutrition

References: Ms. Lisa Hodgins, Newlife mills

Tue, Oct 26
Topics: Integrated Layers nutrition

References: Dr. David Trott, Wallenstein Feeds & Supply Ltd

Thu, Oct 28
Topics: Integrated Layers nutrition

References: Dr. David Trott, Wallenstein Feeds & Supply Ltd

Tue, Nov 2
Topics: Content progress test

Tue, Nov 9

Topics: Health and metabolic disorders in poultry—Veterinarian view

References: Dr. Anastasia Novy

Thu, Nov 11

Topics: Canadian Feed Inspection Agency (CFIA), role and regulation of feed industry in Canada

References: TBC

Tue, Nov 16

Topics: Ontario poultry industry and opportunities for students

References: Al Dam, Poultry Specialist, OMAFRA

Thu, Nov 18

Topics: No classes, self-study

Tue, Nov 23

Topics: Poster Discussion Forum-Day 1

Thu, Nov 25

Topics: Poster Discussion Forum-Day 2

Tue, Nov 30

Topics: Poster Discussion Forum-Day 3

Thu, Dec 2
Topics: No classes

5.2 Lab
Thu, Sep 23
Topics: Demonstration of methods and instruments for nutrient analyses,

References: E. Kiarie, A. Thanabalan

Thu, Nov 4
Topics: Feed manufacturing, virtual feed mill tour-Wallenstein Feeds Supply Ltd, particle size measurement demonstration

References: E. Kiarie, A. Thanabalan

5.3 Learning Activities, Role of Activity in Course, and Student Responsibility

<table>
<thead>
<tr>
<th>Learning Activity</th>
<th>Role of Activity in Course</th>
<th>Student’s responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>Presentations of topics relevant to course objectives in an organized lecture format (see lecture schedule), accompanied by relevant class handouts. Development of student/professor dialogue (chats, emails, voice over internet webex, MsTeams) within the lecture format or after review of lecture materials will be encouraged.</td>
<td>Appropriate background reading to understand lecture material; ask questions to clarify concepts.</td>
</tr>
<tr>
<td>Review paper and poster on a scientific literature on one specific aspect of poultry nutrition</td>
<td>WORK INDEPENDENTLY TO IDENTIFY A RELEVANT ASPECT OF POULTRY NUTRITION, IDENTIFY AND</td>
<td></td>
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</tbody>
</table>
Critique scientific papers and write summary
to encourage the critical evaluation of scientific journal articles, learn to interpret research data, summarize and present novel findings of the research to the public and assess the relevance to poultry nutrition.

Laboratory demonstration
To appreciate some of the methods and tools used for chemical analyses of poultry feeds, feed manufacturing, feed formulation and quality control

Listen to the video, lectures and independently complete three laboratory exercises

5.4 Guidelines

- Guidelines for review of topic in poultry nutrition will be posted in the dropbox of CourseLink and accessible throughout the term
- Guidelines for creating poster and submission to discussion forum will be posted in the dropbox of CourseLink and accessible throughout the term
- Lab manuals and other documents to support laboratory exercises will be posted in the dropbox of CourseLink and accessible throughout the term
- Guidelines for critical review and summary of journal papers will be posted in the dropbox of CourseLink and accessible throughout the term

6 Assessments

6.1 Marking Schemes & Distributions
### 6.2 Assessment Details

**Critical review and summary of Journal article 1 (10%)**  
**Date:** Tue, Oct 5, via Dropbox  
**Learning Outcome:** 5, 6

**Lab 1: Feed analyses (10%)**  
**Due:** Thu, Oct 14, Submitted via Dropbox  
**Learning Outcome:** 3

**Critical review and summary of Journal article 2 (10%)**  
**Date:** Thu, Oct 21, via Dropbox  
**Learning Outcome:** 5, 6

**Lab 2: Feed formulation (10%)**  
**Due:** Thu, Oct 28, Submitted via Dropbox  
**Learning Outcome:** 1, 2, 3, 4, 5, 7

**Content progress test (20%)**
Date: Tue, Nov 2, Courselink  
Learning Outcome: 3, 4, 5  
Start time: 10:00 AM  
End time: 11:30 AM  

Review paper on a topic in poultry nutrition (10%)  
Due: Thu, Nov 11, Dropbox  
Learning Outcome: 5, 6  
Choice for review topic: Due on September 16;11:59 PM (email: athanaba@uoguelph.ca) 

Lab 3: Feed manufacturing (10%)  
Due: Thu, Nov 18, Dropbox  
Learning Outcome: 1, 2, 3, 4, 7  

Poster on a topic in poultry nutrition (10%)  
Due: Tue, Nov 23, Dropbox and Poster Discussion Forum site  
Learning Outcome: 5, 6  

Poster on a topic in poultry nutrition-Discussion Forum participation (10%)  
Due: Tue, Nov 23 - Tue, Nov 30, Poster Discussion Forum site  
Learning Outcome: 5, 6  

7 Course Statements  

7.1 Compliance  

Please note that pandemic restrictions in place at the time of each lecture / lab must be followed by everyone according to the guidelines provided by the University and the local public health unit. The pandemic is a community problem and we all need to actively participate in a community solution. Restrictions may include but not be limited to a vaccination requirement, proper use of appropriate PPE, hand sanitation, social distancing and other measures. Failure to comply with restrictions that are in place at the time of the lecture / lab could result in the immediate cancelation of that lecture / lab. Students would still be responsible for learning the material that was to be covered in that lecture / lab regardless of the cancelation.
7.2 Recording of Lecture Materials

The University of Guelph's primary mode of course delivery has shifted from face-to-face instruction to remote and online learning due to the ongoing COVID-19 pandemic. As a result, synchronous lectures will be autorecorded for posting in CourseLink.

By enrolling in this course, unless explicitly stated and brought forward to the instructor, it is assumed that students agree to the possibility of being recorded during lecture delivery.

If a student prefers not to be distinguishable during a recording, the student may:

1. turn off camera
2. mute microphone
3. edit name (e.g., display initials only) upon entry to each session
4. use the chat function to pose questions.

Students who express to their instructor that they, or a reference to their name or person, do not wish to be recorded may discuss possible alternatives or accommodations with their instructor.

7.3 Netiquette expectations

The course website is considered the classroom and the same protections, expectations, guidelines, and regulations used in face-to-face settings apply. Inappropriate behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor, GTA, guest lecturers or fellow students;
- Using offensive language;
- Copying or presenting someone else’s work as your own;
- Adapting information from the Internet without using proper citations or references;
- Buying or selling term papers or assignments;
- Posting or selling course materials to course notes websites;
- Having someone else complete your quiz or completing a quiz for/with another
student;
• Stating false claims about lost quiz answers or other assignment submissions;
• Threatening or harassing a student or instructor;
• Discriminating against fellow students, instructors, guest lecturers and/or GTAs;
• Using the course website to promote profit-driven products or services;
• Attempting to compromise the security or functionality of the learning management system; and
• Sharing your username and password.

7.4 Dropbox submissions

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.

http://spaces.uoguelph.ca/ed/contact-us/

7.5 Late policy
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 two days at which time access to the Dropbox folder will be closed. Late submissions will NOT be graded if 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.

7.6 Group work

For all assignments, students are encouraged to consult, but assignments need to be handed in and will be marked for individual students.

7.7 Grading policies

Since journal reviews constitute a significant fraction of the course effort and grade, it is essential that they represent your personal efforts.

Identical individual projects: Plagiarism will be strongly suspected if two or more students submit individual projects that are substantially identical, whether in the text of the initial overview sections, the choice of strengths and weaknesses discussed or the selection of supporting references.

Quotation and references: Plagiarism has occurred if the author does not place quotation marks around word-for-word copying of print or electronic format source material even if the source is correctly cited. To further reduce the possibility that a quotation will be misrepresented or mistaken as one’s own work, direct quotations should be italicized where used. Such direct quotations should be used sparingly at most.

Degree of fidelity to source: Plagiarism has occurred if the author’s writing is clearly recognizable as essentially derived from cited or uncited print or electronic format sources, even though the author has altered the original source material by inverting word or sentence order, or substituting synonyms. Authors should summarize and synthesize ideas and concepts rather than interchange words. Failure to follow these guidelines will result in referral of the offending students to the Associate Dean of O.A.C. who will assign the
appropriate penalty.

7.8 Grading and feedback

Unofficial assessment marks will be available in the Grades tool of the course website.

Your instructor will attempt to have grades posted online within 2 weeks of the submission deadline, if the assignment is submitted on time. Once your assignments are marked you can view your grades on the course website by selecting Grades from the Tools dropdown menu on the navbar. Your course will remain open to you for seven days following the last day of the final exam period.

University of Guelph students can access their final grade by logging into WebAdvisor (using your U of G central ID).

https://webadvisor.uoguelph.ca

7.9 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.

7.10 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.

7.11 Additional Costs

Not Applicable

8 University Statements

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

8.2 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. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Graduate Calendar - Grounds for Academic Consideration
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions
https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml

8.3 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 students (undergraduate, graduate and diploma) 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 their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

Graduate Calendar - Registration Changes
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-regchg.shtml

Associate Diploma Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml

8.4 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.

8.5 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 book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website https://www.uoguelph.ca/sas

For Ridgetown students, information can be found on the Ridgetown SAS website https://www.ridgetownc.com/services/accessibilityservices.cfm

8.6 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 encourages academic integrity. 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.

Undergraduate Calendar - Academic Misconduct
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

Graduate Calendar - Academic Misconduct
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml

8.7 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.

8.8 Resources
The Academic Calendars are the source of information about the University of Guelph’s procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars
https://www.uoguelph.ca/academics/calendars

8.9 Disclaimer
Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (https://news.uoguelph.ca/2019-novel-coronavirus-information/) and circulated by email.

8.10 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).

8.11 Covid-19 Safety Protocols
For information on current safety protocols, follow these links:

- https://news.uoguelph.ca/return-to-campuses/how-u-of-g-is-preparing-for-your-safe-return/
- https://news.uoguelph.ca/return-to-campuses/spaces/#ClassroomSpaces

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.