1 Course Details

1.1 Calendar Description
This course covers nutrient requirements, feed formulation and nutritional idiosyncrasies for dogs, cats, and exotic pets.

Pre-Requisites: NUTR*3210

1.2 Course Description
This course covers nutrient requirements, feed formulation, and nutritional idiosyncrasies for dogs, cats, and exotic pets.

1.3 Timetable
Lectures: Tuesday/Thursday 2:30-3:50 p.m. and available both on-line and in person.

Format for lectures:

1. **Asynchronous** topic focused lectures (pre-recorded and posted prior to lectures)

2. **Synchronous** engagement during scheduled lecture time on Zoom to discuss questions posed during lecture and to create a deeper understanding of how to apply the information presented.
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

No final exam for this course.

2 Instructional Support

2.1 Instructional Support Team

Instructor: Anna Kate Shoveller BSc, PhD  
Email: ashovell@uoguelph.ca  
Office: ANNU 240

Primary instructor to be contacted regarding course material. Responsible for supporting group contracts and discussing content for your reflection. Will be responsible for evaluating both contracts and reflections.

2.2 Teaching Assistants

Teaching Assistant: Julia Guazzelli Pezzali DVM, PhD candidate  
Email: jguazzel@uoguelph.ca  
Office: By appointment

Teaching Assistant: Michelina Crosbie BSc, MSc, PhD candidate  
Email: crosbiem@uoguelph.ca  
Office: By appointment

Teaching Assistant: Lindsey Rummell MSc candidate  
Email: lrummell@uoguelph.ca  
Office: By appointment
Responsibility: Guidance on 5 minute scientifically based and backed video. Videos must be posted to YouTube after approval from Rummell and Shoveller.
2.3 How to contact course instructor(s) and teaching assistants

General questions: ansc4560@uoguelph.ca

Specific assignment questions: Please contact the teaching assistant responsible for your specific inquiry.

3 Learning Resources

3.1 Required Resources

Or through Primo through the University of Guelph library: https://ebookcentral-proquest-com.subzero.lib.uoguelph.ca/lib/uoguelph/detail.action?docID=1429559

3.2 Recommended Resources

http://www.markmorrisinstitute.org/sacn5_chapters.html

3.3 Additional Resources

Other Resources (Notes)
Electronic copies of course notes, handouts (copies of the Powerpoint slides) and other material will also be posted on a weekly basis on the course website. Copies of course notes are not intended to be the sole source of information, but are meant to guide an academic discussion on course material.

Lab Manual (Lab Manual)
Not Applicable

Field Trips (Other)
TBD

3.4 Course Technology and Technical Support
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.

http://www.uoguelph.ca/web/privacy/ https://www.d2l.com/legal/privacy/
https://www.d2l.com/accessibility/standards/
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

Support Hours (Eastern Time):

Monday thru Friday: 8:30 am–8:30 pm

Saturday: 10:00 am–4:00 pm

Sunday: 12:00 pm–6:00 pm

Teams (via Office 365)
**Synchronous** engagement during scheduled lecture time on Microsoft Teams to discuss questions posed during lecture and to create a deeper understanding of how to apply the information presented.

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
3.4 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/

3.4 Library Access

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.
4 Learning Outcomes

4.1 Course Learning Outcomes

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

1. Develop an understanding of the different needs of different exotic animals.

2. Develop an understanding of the basic digestive, physiological and metabolic processes of dogs and cats as they relate to nutrition.

3. Be aware about the relationship between nutrition, environment, welfare and health.

4. Compare approaches for establishing nutrient requirements, nutritional specifications, and feed formulation guidelines and be able to discuss some of the limitations and implications of these approaches. Learn about some of the methods and protocols commonly used in pet nutrition research.

5. Learn about feed ingredients, their origin, and the factors affecting their quality and nutritive value.

6. Learn about formulation and manufacturing pet foods (pet feeds) and the regulatory issues related to pet foods.

7. Be exposed to current and emerging issues in the pet food industry.

8. Learn about available commercial and unconventional pet foods.

9. Acquire some of the skills needed to be able to effectively gather, integrate and analyze scientific information to make informed decisions related to the nutrition and health of companion animals and be able to develop a critical view of nutritional claims and statements found in technical and commercial pet food documentation and advertising.

10. Understand that optimal feeding of healthy companion animals is important for the prevention of disease.
4.2 University Level Learning Outcomes

The course is designed to meet the following Learning Objectives of the University:

1. *Literacy*
   Students will be required to critically review and understand the up-to-date scientific information on pet nutrition compiled in course notes and lecture material (power point slides). The students will also be required to review scientific papers and technical documents, comprehend and present ideas and findings into an imposed format.

2. *Understanding of Forms of Inquiry*
   A major theme of this course will pertain to the process whereby information is obtained from a variety of sources and presented and interpreted from various perspectives.

3. *Depth and Breadth of Understanding*
   This course will cross the boundaries of several conventional disciplines within the broad areas of nutrition, metabolism, physiology, feed technology, etc. Students will be encouraged to go beyond material discussed in class.

4. *Independence of Thought*
   Emphasis will be placed on identifying and understanding the basis for current viewpoints. Inevitably, this results in challenges to orthodoxy.

5. *Love of Learning*
   This course will be aimed at helping students to distinguish between education and training, and to ascribe value to both.

5 Teaching and Learning Activities

5.1 Lecture

    Thu, Sep 9

Topics: Introduction to course, review of course outline. Will be available on-line and in-person.

Shoveller

Synchronous lecture streamed and recorded on Zoom.
Tue, Sep 14

**Topics:** History of the pet food industry

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

Thu, Sep 16

**Topics:** A brief overview of regulations in the pet food industry

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

*Groups announced for final project*

Tue, Sep 21

**Topics:** A comparison of the gastrointestinal anatomy and physiology of the dog and cat

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

Thu, Sep 23

**Topics:** Energy metabolism and requirements

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.
Tue, Sep 28

Topics: Protein and amino acid metabolism and requirements
Pre-recorded lecture, Asynchronous
Synchronous: Discussions on Zoom

Thu, Sep 30

Topics: Lipid metabolism and fatty acid requirements
Pre-recorded lecture, Asynchronous
Synchronous: Discussions on Zoom

Tue, Oct 5

Topics: Carbohydrate metabolism
Pre-recorded lecture, Asynchronous
Synchronous: Discussions on Zoom

Thu, Oct 7

Topics: Vitamin metabolism and requirements
Pre-recorded lecture, Asynchronous
Synchronous: Discussions on Zoom

Tue, Oct 12

Topics: Thanksgiving
Thu, Oct 14

Topics: Mineral metabolism and requirements

Lecture and discussions to be led by PhD student, Cara Cargo-Froom

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom

Tue, Oct 19

Topics: Water metabolism and requirements

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom

Thu, Oct 21

Topics: Pet food ingredients

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom

Tue, Oct 26

Topics: Manufacturing pet food: Ingredient quality and processing techniques

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom

Thu, Oct 28

Topics: Behavior in cats and dogs and the effect on feeding
management

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom

**Tue, Nov 2**

**Topics:** Oral and dental health of cats and dogs

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

**Thu, Nov 4**

**Topics:** Nutrition of working dogs

Lecture and discussion to be led by Dr. James Templeman

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

**Tue, Nov 9**

**Topics:** Gastrointestinal health, the first line of defense

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

**Thu, Nov 11**

**Topics:** Skin and coat health

Pre-recorded lecture, Asynchronous
Synchronous: Discussions on Zoom.

**Tue, Nov 16**

**Topics:** Life-cycle nutrition for dogs and cats

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

**Thu, Nov 18**

**Topics:** Senior cat considerations

**References:** Supplementary reading: Healthy aging in dogs

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

**Tue, Nov 23**

**Topics:** Considerations when feeding pet reptiles

Lecture and discussion to be led by PhD student, Cargo-Froom

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom

**Thu, Nov 25**

**Topics:** Considerations when feeding small mammals

Lecture and discussion led by Dr. James Templeman

Pre-recorded lecture, Asynchronous
Synchronous: Discussions on Zoom.

**Tue, Nov 30**

**Topics:** 3 minute videos and peer grading

Shoveller, TAs, industry and government representatives as the evaluation committee

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

**Thu, Dec 2**

**Topics:** 3 minute videos and peer grading

Shoveller, TAs, industry and government representatives as the evaluation committee

Pre-recorded lecture, Asynchronous

Synchronous: Discussions on Zoom.

**5.2 Seminar**

**Topics:** Not Applicable

**5.3 Lab**

**Topics:** Not Applicable

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**6 Assessments**

**6.1 Marking Schemes & Distributions**
<table>
<thead>
<tr>
<th>Name</th>
<th>Scheme A (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team contract</td>
<td>10</td>
</tr>
<tr>
<td>Product development</td>
<td>40</td>
</tr>
<tr>
<td>Formulation</td>
<td>20</td>
</tr>
<tr>
<td>Public Education Video</td>
<td>25</td>
</tr>
<tr>
<td>Reflection on individual and group experience</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

### 6.2 Assessment Details

**Team contract (10%)**
- **Date:** Thu, Sep 9 - Sun, Sep 26

**Product development (40%)**
- **Date:** Thu, Sep 9 - Mon, Nov 8, 9:00 AM, DROP BOX
- **Learning Outcome:** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Review entire bag and compare with guidance from PFAC and AAFCO

a. Guaranteed Analysis (GA)

b. Ingredients

c. Rationale

**Formulation (20%)**
- **Date:** Fri, Nov 12 - Mon, Nov 15, 9:00 AM

Using BalancePup attempt to formulate the same diet and recommend what kind of pet this diet should be considered for and compare GA and ingredient composition.

**Public Education Video (25%)**
- **Date:** Tue, Nov 30 - Thu, Dec 2, DROP BOX
- **Learning Outcome:** 4, 5, 6, 7, 9, 10
  - **One submission per group**

Please add reference list as a separate document.

**Reflection on individual and group experience (5%)**
- **Date:** Fri, Dec 3 - Tue, Dec 7, 9:00 AM

### 6.3 Late Policy
* 10% per day will be deducted for late assignments. It is the student’s responsibility to request consideration for late assignments or missed exams a minimum of 5 days prior to the deadline. Failure to adhere to the regulations pertaining to graded assignments and midterms as described in this document may result in a mark of zero and consultation with the Dean’s office regarding academic misconduct.

6.4 Term Projects Description and Details

**Team contract:** Each individual student will sign up to review a specific product within a group of similar products. The similar products will define the communication video group below. Once those groups are established, groups need to meet (virtually or in person) to discuss the terms of how they will work through the semester. While projects are individual, similar products provide an opportunity for peer mentorship to dive deep into understanding a single focused group of products and the science behind them. Groups are encouraged to discuss their draft contracts and ways of working with the instructor prior to final submission.

**Product development:** The project will focus on the selection of current commercial diets (nutrient levels, ingredients utilized, and claims made), subsequent development of a similar formulation, and a summary of the scientific support for that type of diet.

The type of product for dogs or cats will be chosen by the student and will need to be personally approved by Fiona Tansil. You are encouraged to connect with your teaching assistants to have a brief conversation about the diet(s) that you are reviewing and get their insights. A commercial product must be chosen from the list of options available, which will additionally predict the final groups for the video communications project. Students should look at what claims appear on the food package that relate to the formulation and seek to understand whether scientific support exists to substantiate these claims. Understanding the ingredient selection to meet the guaranteed analyses is critical and underpins attempts to match the formula using the formulation spreadsheet. Understanding the support required for on bag and website claims needs to be demonstrated.

**Formulation:** Students will use software developed by former teaching assistant Ilona Parenteau, MSc (currently industrial nutritionist) and Professor Shoveller to try and duplicate the diet researched. We encourage you to consider new nutritional technologies from the
scientific peer-reviewed literature to incorporate into your product and “tell your story”. Attempts to improve diets and provide scientific or patent support will be required to demonstrate a thorough understanding of the formulation approach. You will be required to properly calculate moisture and metabolizable energy content of the foods and you should put your guaranteed analyses together based on your predicted macronutrient and micronutrient content. Finally, the type of animal and feeding instructions should be provided.

GROUP PROJECT

Public communication/video: A scientifically supportable public outreach video should a culmination of the learnings from your product development and formulation assignments. Videos will be targeted to educate pet owners in 5 minutes. Students will be primarily evaluated on scientific accuracy and level of understandability. Videos will also be scored by individuals employed in Communications at the University of Guelph in addition to your peers, the instructor (Shoveller), teaching assistants, industry representatives and government representatives. Presentations will be viewed in the final week of class and each student is expected to evaluate each presentation. **Failure to evaluate each presentation, will result in a 10% deduction on your mark for this assignment.**

Reflection: Each student is to write a reflection that discusses, in 250 words of less, why the student took the course and then the thinking, learning and work required in the course and whether this helped to achieved your own, the course specific, and the university specific goals.

7 Course Statements

7.1 Lecture Availability

Lectures with voice overs will be posted a week prior for asynchronous virtual delivery to the
discussions during scheduled lecture time (synchronous delivery).

7.2 Course Policy on Group Work

Working in groups is challenging, but certainly a “real life” experience. Please show compassion, consideration and respect for each other.

7.3 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.

7.4 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 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, and/or TAs;
- 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.

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 and academic schedules. Any such changes will be announced via CourseLink and/or class email. 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

The University will not normally require verification of illness (doctor's notes) for fall 2020 or winter 2021 semester courses. However, requests for Academic Consideration may still require medical documentation as appropriate.