



# **ANSC\*4100 - Applied Environmental Physiology and Animal Housing**

**Winter 2026 Course Outline**

**Section: 01**

**Credits: 0.50**

---

## **Land Acknowledgement: Guelph**

As scientists, it's important for us to connect with the environment that we study. At the University of Guelph, we acknowledge that our work takes place on the ancestral lands of the Attawandaron people. We also recognize that these lands are part of the treaty territory of the Mississaugas of the Credit. We honour the rich history and ongoing presence of Indigenous communities on these lands, and commit to respecting and learning from their connection to the natural world.

## **Calendar Description**

Basic concepts of environmental physiology and their application to animal housing and management will be introduced. The course will review the physics of heat flow, light and air quality as they relate to animal biology and health. Other aspects, such as the physical environment, that impact on animal health and well-being will be discussed.

**Prerequisite(s):** ANSC\*3080

**Department(s):** Department of Animal Biosciences

---

## **Course Description**

Basic concepts of environmental physiology and their application to animal housing and management will be introduced. The course will review the physics of heat flow, light, and air quality as they relate to animal biology and health. Other aspects, such as the physical environment, that impact on animal health and well-being will be discussed.

The overall goal of this course is to stimulate curiosity and inquiry in animal physiology, and to develop an understanding and appreciation for species-specific housing requirements, based on their needs. Another important goal of this course is to provide students with the opportunity to explore and develop transferable skills in idea synthesis, written communication, and graphic design.

## **Lecture Schedule**

TuTh 8:30am-9:50am in ROZH\*103 (1/5 to 4/21)

## **Instructor Information**

**Dr. Pauline Kosmal, BSc, MSc, PhD**

Email: [pkosmal@uoguelph.ca](mailto:pkosmal@uoguelph.ca)

Office: ANNU 139

Office Hours:

Tu/Th 9:50-10:30 or by appointment

---

## **Teaching Assistants**

**Kayleigh Klein** [kklein01@uoguelph.ca](mailto:kklein01@uoguelph.ca)

**Brooklyn Liversidge** [bliversi@uoguelph.ca](mailto:bliversi@uoguelph.ca)

**Florence Nyaga** [fnyaga@uoguelph.ca](mailto:fnyaga@uoguelph.ca)

TA office hours are by appointment only.



## Learning Resources

### Course Resources

Students will need access to a computer that is compatible with Google SketchUp. All other information can be found on Counselink (<https://counselink.uoguelph.ca/shared/login/login.html>)

### 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

Textbook / Learning Resource	Required / Recommended	Cost
Environmental Physiology of Livestock	Recommended	\$306.00 through Amazon; Free online version

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 animals; physiological responses to the environment and how these responses influence health, productivity and well-being.
2. Develop science-based recommendations for animal housing and management.
3. Integrate, interpret and synthesize information from multiple disciplines (environment, genetics, economics, nutrition, housing, society and agrology) to improve animal building envelopes.
4. Extrapolate, cultivate, construct and apply advanced research and analytical techniques.
5. Effectively communicate their thoughts, arguments, and decision-making outcomes in a professional manner.
6. Develop a mature intellectual independence and to integrate ethical reasoning and apply it to improve animal housing designs.
7. Be able to effectively participate in group settings to collaboratively come to innovative solutions to current issues in animal housing design.

## Schedule of Topics and Assignments

Day	Date:	Topic	Activities	Due
Tue	1/6	Introduction		
Thu	1/8	Environment & Animal Integrated Physiology	Group selection due	Sun Jan 11th @ 11:59 pm (hard deadline)
Tue	1/13	Thermal Biology (part I) - Principles of Heat Flow		
Thu	1/15	Thermal Biology (part I & II) - Principles of Heat Flow & Thermoregulation and Heat Stress		
Tue	1/20	Thermal Biology (part II) - Thermoregulation and Heat Stress		
Thu	1/22	Vision/ Biological Rhythm/ Lighting		
Tue	1/27	Vision/ Biological Rhythm/ Lighting		
Thu	1/29	Ventilation	Prototype due	Fri Feb 30th (soft deadline) no late penalties applied until Sun Feb 1st @11:59pm (hard deadline)
Tue	2/3	Transportation		
Thu	2/5	Midterm Review		
Tue	2/10	Midterm Exam	Midterm	Tues Feb 10th @8:30am (in class)
Thu	2/12	Google Sketch up Seminar		



Tue	2/17	Winter Break		
Thu	2/19	Winter Break		
Tue	2/24	Species review of current and future building envelopes - Swine		
Thu	2/26	Species review of current and future building envelopes - Poultry	Guest Lecture: Al Dam Lit review outline due	Fri Feb 27th (soft deadline) no late penalties applied until Sun Mar 1st @11:59pm (hard deadline)
Tue	3/3	Species review of current and future building envelopes - Dairy Cattle	Guest Lecture: Kayleigh Klein	
Thu	3/5	Species review of current and future building envelopes - Sheep and Goat		
Tue	3/10	Species review of current and future building envelopes - Beef	Guest Lecture: Dr. Dan Pecoskie	
Thu	3/12	Case Study I - Livestock	Case Study I	Starts @8:30am in class Mar 12th. Due @11:59 pm (hard deadline)
Tue	3/17	Species review of current and future building envelopes - Innovative design for research cats	Guest Lecture: Luciana Guimaraes Reis and Sarah MacDonald Murray	
Thu	3/19	Species review of current and future building envelopes - Horses	Guest Lecture: T. Connor McCorkell	
Tue	3/24	Species review of current and future building envelopes - Aquaculture		
Thu	3/26	Species review of current and future building envelopes - Wildlife		
Tue	3/31	Case Study II - Companion and Exotic Animals	Case Study II	Starts @8:30am in class. Due @11:59 pm (hard deadline)
Thu	4/2	Working Period	Final Design due	Fri Apr 3rd (soft deadline) no late penalties applied until Sun Apr 5th @11:59pm (hard deadline)

## Assessment Breakdown

Description	Weighting (%)
Design Project: Group Selection	0%
Design Project: Species + Prototypes	12.5%
Design Project: Lit Review Outline	12.5%
Design Project: Final	35%
Midterm Exam	20%
Case Study I	10%
Case Study II	10%

## Assessment Details

### Design Project

**Group selection:** Due Sun Jan 11th @ 11:59 pm (hard deadline)

60%

**Species specification and prototypes:** Due Fri Feb 10th (soft deadline); Sun Feb 12th @11:59pm (hard deadline)

**Lit review outline:** Due Mar 6th (soft deadline); Sun Mar 8th @11:59pm (hard deadline)

**Final design project:** Due Fri Apr 3rd (soft deadline); Sun Apr 5th @11:59pm (hard deadline)



The purpose of this project is to allow you to solve a housing issue for the species of your choice and in a geographical location selected by you. **Design projects will be completed in groups of three.** Think critically and be creative (cost is not a factor). Groups will be determined in the first week of class.

**Course Learning Outcomes Assessed:** 2, 3, 4, 5, 6, 7

## Midterm

**20%**

Date: February 10th @ 8:30am (in class)

The midterm will assess your understanding of the foundational material. Applied critical thinking questions will be based on the knowledge shared in the lecture and accompanying materials. The midterm is intended to take 1 hour to complete, but you will have the entire class to do so.

**Course Learning Outcomes Assessed:** 1, 3, 5

## Case Studies

**20%**

**Case Study I:** Starts in class on Thurs Mar 12th @8:30 am. Due @11:59 pm.

**Case Study II:** Starts in class on Tues Mar 31st @8:30 am. Due @11:59 pm.

The purpose of the case studies is for students to respond to two scenarios on livestock (I) and companion and exotic animal (II) housing. Students are granted access to course materials and research papers. Students may work in groups, but responses must be formed **individually**.

**Course Learning Outcomes Assessed:** 1, 2, 3, 5, 6

## Last Day to Drop Course

The final day to drop Winter 2026 courses without academic penalty is the last day of classes: April 06

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 will be submitted online through Dropbox on Courselink in a PDF format (Design project).
- The midterm will be delivered in person during lecture hours.
- Case studies will be released on Courselink@ 8:30 am and will close @ 11:59 pm.
- The teaching team will answer questions related to assignments during regular working hours only (9 am to 4 pm Monday to Friday).

### Late Assignments

- Requests for extensions should be submitted to your instructor no later than 4 pm on the soft deadline date.
- The Dropbox will close **4 days after the assignment deadline**.
- Late penalties are as follows:
  - Within 12 hours: -2.5%
  - 12-24 hours: 5%
  - 24-48 hours: 10%
  - 48-72 hours: 15%
  - 72-96 hours: 20%

### Re-grading

Note that assignments cannot be submitted for regrading, however errors in grade calculations will be corrected.

## Course Standard Statements



## Netiquette Expectations

For distance education courses, the course website is considered the classroom and the same protections, expectations, guidelines, and regulations used in face-to-face settings apply, plus other policies and considerations that come into play specifically because these courses are online.

Inappropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor or fellow students;
- Using obscene or offensive language online;
- 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 online;
- 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;
- Sharing your username and password; and
- Recording lectures without the permission of the instructor.

## CourseLink System Requirements

You are responsible for ensuring that your computer system meets the necessary system requirements. (<https://opened.uoguelph.ca/student-resources/system-and-software-requirements>) Use the browser check (<https://courselink.uoguelph.ca/d2l/systemCheck>) tool to ensure your browser settings are compatible and up to date. (Results will be displayed in a new browser window)

## Technical Skills

As part of your online experience, you are expected to use a variety of technology as part of your learning:

- Manage files and folders on your computer (e.g., save, name, 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 instructors for this are given in your course);
- Access, navigate, and search the internet using a web browser (e.g., Chrome, Firefox, Microsoft Edge, Safari, etc.);
- Perform online research using various search engines (e.g., Google) and library databases.

## Technical Support

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

Courselink Support  
University of Guelph  
Day Hall, Room 211  
Email: [courselink@uoguelph.ca](mailto:courselink@uoguelph.ca) ([https://calendar.uoguelph.ca/syllabi/2024-summer/ahss-1130-s1de2-ahss\\_1130\\_s1de2/email%20to:courselink@uoguelph.ca](https://calendar.uoguelph.ca/syllabi/2024-summer/ahss-1130-s1de2-ahss_1130_s1de2/email%20to:courselink@uoguelph.ca))  
Tel: 519-824-4120 ext. 56939  
Toll-Free (CAN/USA): 1-866-275-1478

Walk-In Hours (Eastern Time):  
Monday thru Friday: 8:30 am-8:30pm

Phone/Email Hours (Eastern Time):  
Monday thru Friday: 8:30am-8:30pm  
Saturday: 10:00am - 4:00pm



Sunday: 12:00pm - 6:00pm

## Course Accessibility and Inclusivity Practices

This course has adopted the following practices to increase accessibility and inclusivity. If your success in learning requires additional support, please let your instructor and/or SAS advisor know.

(1) Soft and hard deadlines. To reduce the workload over the weekend and the number of last-minute extensions, this course sets soft and hard deadlines for assignments. Students are encouraged to submit their work before the soft deadline (Fridays @11:59pm); however, late penalties will not apply until the hard deadline (Sundays @11:59pm). Therefore, students should request extensions only if they need additional time beyond the hard deadline.

(2) The midterm is intended to take 60 minutes; however, students will have the entire 80 minute period to complete.

(3) Studies have shown that students prefer to interact with instructors immediately following lectures as opposed to other pre-set times. Therefore, I will be available immediately after lectures to answer questions.

(4) Virtual and in-person office hours by appointment. If you wish to meet with me to discuss lecture material, assignments, grading etc. Please use my Outlook calendar to schedule a meeting (no longer than 30 minutes) with me, either in person (ANNU 139) or virtually, if needed.

(5) Instruction in multiple formats. To help facilitate learning, there are multiple ways for students to engage with the material. Students can learn things on their own, using google searches and YouTube videos, can read along with the CourseLink content, and can engage and ask questions at any point during or after lectures etc.

## Standard Statements for Undergraduate 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/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-misconduct/>) is outlined in the Undergraduate 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.

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 make a booking at least 10 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 Accommodations of Religious Obligations (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/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

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 undergraduate students 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 the Undergraduate Calendar - Dropping Courses (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/dropping-courses/>).

## Email Communication

As per university regulations, all students are required to check their [uoguelph.ca](mailto: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 Undergraduate Calendar for information on regulations and procedures for Academic Consideration. (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>)