

# ANSC\*4490 - Applied Endocrinology

## Winter 2025 Course Outline

Section: 01

Credits: 0.50

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## Calendar Description

This course examines the endocrine systems of farm animals and their applications to improve and monitor the production, performance, behavior and health of livestock. Considerable emphasis will be placed upon understanding how knowledge of endocrine regulation can be applied within animal production systems.

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

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## Course Description

In this course, we hope to stimulate your excitement about science and the scientific approach; that is, how new information is discovered and how it can be applied to animal production systems. We will also encourage you to be an independent and critical thinker. This learning process is more important than remembering every detail of the material, but you need to know enough detail to be able to potentially manipulate the endocrine systems we are studying. The lecture notes will be posted on Courselink and students are expected to review the notes and to read the appropriate sections of the textbook to prepare for the lecture. The lectures are in-person and attendance is highly recommended as there will be a number of in-class activities designed to test your knowledge of the lecture material and post-lecture participation marks that will contribute to your overall grade.

## Lecture Schedule

TuTh 1pm-2:20pm in ANNU\*156 (1/6 to 4/21)

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

## Lectures

### Part 1. Endocrine Systems

#### Tue, Jan 7

- Introduction and overview of hormones and endocrinology
- References: Textbook Ch. 1, pp. 1-6

#### Thu, Jan 9

- Synthesis, release and metabolism of hormones
- References: Textbook Ch. 1, pp. 7-18

#### Tue, Jan 14

- Cell surface receptors (part 1)
- References: Textbook Ch. 1, pp. 19-33

#### Thu, Jan 16

- Cell surface receptors (part 2)
- References: Textbook Ch. 1, pp. 19-33

#### Tue, Jan 21

- Intracellular receptors
- References: Textbook Ch. 1, pp. 33-46

#### Thu, Jan 23

- Integration of Hormone Action
- References: Textbook Ch. 1, pp. 46-55

**Tue, Jan 28**

- In-class midterm on endocrine systems

**Part 2. Endocrine Methodologies**

**Thu, Jan 30**

- Methods for determining how endocrine systems function
- References: Textbook Ch. 2, pp. 59-75

**Tue, Feb 4**

- Assay methods for measuring hormones (part 1)
- References: Textbook Ch. 2, pp. 75-86

**Thu, Feb 6**

- Assay methods for measuring hormones (part 2)
- References: Textbook Ch. 2, pp. 75-86

**Tue, Feb 11**

- Receptor binding assays
- References: Textbook Ch. 2, pp. 86-89

**Thu, Feb 13**

- Methods for producing hormones
- References: Textbook Ch. 2, pp. 89-97

**Tue, Feb 25**

- Manipulating endocrine systems
- References: Textbook Ch. 2, pp. 97-108

**Thu, Feb 27**

- In-class midterm on endocrine methodologies

**Tue, Mar 4**

- Student presentation review and final assignment instructions

**Part 3. Applications of Endocrinology**

**Thu, Mar 6**

- Guest lecture: Endocrine applications in aquaculture (Dr. D. Huyben)

**Tue, Mar 11**

- **Student Presentations**
- *Topic:* Endocrine manipulation of growth and carcass composition

**Thu, Mar 13**

- **Student Presentations**
- *Topic:* Endocrine manipulation of growth and carcass composition

**Tue, Mar 18**

- **Student Presentations**
- *Topic:* Endocrine manipulation of growth and carcass composition

**Thu, Mar 20**

- **Student Presentations**
- Endocrine effects on animal products

### Tue, Mar 25

- **Student Presentations**
- Endocrine effects on animal products

### Thu, Mar 27

- **Student Presentations**
- *Topic:* Endocrine effects on animal products or health, behaviour and response to environment

### Tue, Apr 1

#### Student Presentations

- *Topic:* Effects on animal behaviour, health, and response to environment

### Thu, Apr 3

- **Student Presentations**
- *Topic:* Effects on animal behaviour, health, and response to environment

## Instructor Information

#### James Squires

Email: jsquires@uoguelph.ca

#### Christine Bone

Email: cbone@uoguelph.ca

## Teaching Assistants

#### Alyssa Lini

Email: alini@uoguelph.ca

## Textbooks

Group	Title	Author	ISBN
Recommended	Applied Animal Endocrinology 3rd edition	E. J. Squires	

## Learning Resources

### Required Resources

All course lectures and supplementary materials are available on the Courselink site.

### 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
Applied Endocrinology 3rd edition	recommended	available online through the library at no cost

## Library Course Reserve (Ares)

For this course, you will be required to access course reserve materials through the University of Guelph McLaughlin Library. To access these items, select **Ares** on the navbar in Courselink. Note that you will need your Central Login ID and password in order to access items on reserve.

For further instructions on accessing reserve resources, visit [How to Get Course Reserve Materials \(https://www.lib.uoguelph.ca/find/course-reserves-ares/\)](https://www.lib.uoguelph.ca/find/course-reserves-ares/).

If at any point during the course you have difficulty accessing reserve materials, please contact the e-Learning Operations and Reserve Services staff at:

Tel: 519-824-4120 ext. 53621 | Email: [libres2@uoguelph.ca](mailto:libres2@uoguelph.ca) | Location: McLaughlin Library, First Floor, University of Guelph

## Course Learning Outcomes

1. Understand and explain the concepts of endocrinology, including the structure and function of hormones and receptors, and the integration of hormone action.
2. Evaluate methods to study how endocrine systems work and how they can be manipulated or used to monitor animal production systems.
3. Integrate information to manipulate selected endocrine systems that can affect animal growth and carcass composition the production of animal products, and animal behaviour, health and response to environment.
4. Critically analyse experiments in endocrinology in written form and in class presentations.

## Communicating with Your Instructor

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 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.
- **Questions:** All questions should be directed to the TA first for resolution. If necessary, it will be escalated to the instructor.
- **Email:** If you have a conflict that prevents you from completing course requirements, or have a question concerning a personal matter, you can send your instructor a private message by email. The instructor will attempt to respond to your email within 24 hours.

### Statement on Inclusive Verbiage

This class is founded on an environment of mutual respect. All students are encouraged to share, engage in discussion, and learn from one another. Respect will be a requirement for participation in this course. In line with respecting others, we will use the names and pronouns that members of this class ask for us to use in reference to them. Please share with the instructors and/or the class (as you feel comfortable) the name(s) and pronouns you would like for us to use for you, if they ever differ from information available to us on Courselink.

## Assessment Breakdown

Description	Weighting (%)	Due Date
Lecture participation	5%	Jan 9 to Feb 27
In class quiz on endocrine systems	15%	Jan 28
Group contract	2%	Jan 30
In class quiz on endocrine methods	15%	Feb 27
Class presentation	18%	Mar 11 to Apr 3
Presentation bonus questions	5%	Mar 11 to Apr 3
Final assignment outline	5%	Mar 25
Final assignment	35%	April 11 at 11:59 pm

## Assessment Details

### Assessments

This is a tentative mark breakdown and may be changed at the instructor's discretion.

### Group Presentation

From March 11th to April 3rd, Groups of 4-5 students will give a 30-minute presentation on a specific application of endocrinology in Animal Biosciences, followed by a 10-minute discussion period. Students can self-enroll in groups on Courselink until **January 23rd**; after this date, they will be

auto-assigned to a group. Complete groups must email the TA by **January 28th** to select an available presentation topic and date (refer to the student presentation topic list on Courselink). Additionally, groups must submit a signed group contract by **January 30th**, outlining each member's role and expectations. The presentation should include the following sections: introduction, endocrinological principles, innovative research, applications, conclusion, and bonus questions for the class. Students must submit their presentation as a PowerPoint file to the Dropbox **24 hours before the presentation date** (one submission per group), including answers to the multiple-choice bonus questions in the Dropbox comment section. The group presentation is a group mark (20% of the final grade: 2% for the group contract submission and 18% for the presentation), with an additional 5% individual participation grade. Detailed instructions are available on Courselink under Class Presentations.

### Course Quizzes and Assignments

The quizzes in this course are intended to test the knowledge and understanding of the material. Each quiz is worth 15% and will be available under the "Quizzes" section on Courselink, but will be completed during class time. Assignments are designed for students to apply and understand the material presented in lectures. Students will submit a final assignment outline (5%) detailing their plans for the final assignment (35%), which is designed to build off the material from the group presentations. The details for the final assignment will be released in March and must be submitted to the Dropbox by **Apr. 11 at 11:59 p.m.**

### Lecture Participation

The objective of the 5% participation mark is to provide an anonymous platform for students to submit questions they have regarding the lecture that they would like clarified. Questions can be submitted at the end of each lecture on Courselink and will assist the instructors in developing review questions and concepts to be covered at the start of the following lecture. Students can alternatively answer a review question that will be provided after each lecture to obtain participation marks. Participation submissions are due **24 hours after each lecture.**

## Participation

### Lecture participation

Course Learning Outcomes Assessed: 1, 2

## Quizzes

### Endocrine systems

Course Learning Outcomes Assessed: 1, 2

### Endocrine methods

Course Learning Outcomes Assessed: 1, 2

## Presentation

### Class presentation

Course Learning Outcomes Assessed: 1, 2, 3, 4

## Participation

### Presentation bonus questions

Course Learning Outcomes Assessed: 1, 2, 3, 4

## Assignment

### Final assignment outline

Course Learning Outcomes Assessed: 1, 2, 3, 4

### Final assignment

Course Learning Outcomes Assessed: 1, 2, 3, 4

## 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

### Grading Policies

Unless otherwise stated, assignments should be submitted via Dropbox by 11:59 p.m. on the due date. Late penalties of 2% per day will be assessed for late submissions.

Our philosophy with grading is that if you work hard and deserve an A, you will not be prevented from receiving that grade. There is no set number of A's that can or have to be assigned. We want all students to work hard and do the best that they can. That being said, we will be grading according to the university policy outlined below.

The assignment of grades at the University of Guelph be based on clearly defined standards, which are to be published in the Undergraduate Calendar for the benefit of faculty and students and that the definitions for each of the numerical grade range (letter grades) be as follows:

- **80 - 100 (A) Excellent.** An outstanding performance in which the student demonstrates a superior grasp of the subject matter, and an ability to go beyond the given material in a critical and constructive manner. The student demonstrates a high degree of creative and/or logical thinking, a superior ability to organize, to analyze, and to integrate ideas, and a thorough familiarity with the appropriate literature and techniques.
- **70 - 79 (B) Good.** A more than adequate performance in which the student demonstrates a thorough grasp of the subject matter, and an ability to organize and examine the material in a critical and constructive manner. The student demonstrates a good understanding of the relevant issues and a familiarity with the appropriate literature and techniques.
- **60 - 69 (C) Acceptable.** An adequate performance in which the student demonstrates a generally adequate grasp of the subject matter and a moderate ability to examine the material in a critical and constructive manner. The student displays an adequate understanding of the relevant issues, and a general familiarity with the appropriate literature and techniques.
- **50 - 59 (D) Minimally Acceptable.** A barely adequate performance in which the student demonstrates a familiarity with the subject matter, but whose attempts to examine the material in a critical and constructive manner are only partially successful. The student displays some understanding of the relevant issues, and some familiarity with the appropriate literature and techniques.
- **0 - 49 (F) Fail.** An inadequate performance.

### Course Policy on Group Work

All group members are expected to contribute equally to the class presentations, but individuals may be responsible for different aspects of the work. All students in the group should participate in the presentation and answer questions.

**Note: Instructors are not notified when a student drops the course. If you intend to drop the course, please notify your group members so they can adjust the distribution of work accordingly.**

### Dropbox Submissions

Assignments should be submitted electronically via the online **Dropbox** tool. When submitting your assignments to the Dropbox, 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/>

## Statement on the use of AI

Students' work must reflect their unique intellectual capacity and demonstrate the application of critical thinking and problem solving. Therefore, the use of AI (e.g., ChatGPT) to complete any form of assessment is **not permitted** in this course. **Submission of materials completed by AI constitutes an offence under the University's academic misconduct policies, either as a form of plagiarism or the use of unauthorized aids.**

## 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> 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/navigation/>) 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/>)