



ANSC*3080 Agricultural Animal Physiology

Fall 2019

Section(s): C01

Department of Animal Biosciences

Credit Weight: 0.50

Version 3.00 - September 09, 2019

1 Course Details

1.1 Calendar Description

This course is an introduction to the physiology of domesticated farm animals. The course will emphasize homeostatic control of the major body systems. The lectures cover the nervous, cardiovascular, respiratory, urinary, immune, endocrine and reproductive systems. The lectures and laboratories are closely integrated.

Pre-Requisites:

BIOC*2580 or EQN*2040

Restrictions:

Registration in BSC(Agr), BSC.ABIO or BBRM.EQM, Minor in Agriculture.

1.2 Timetable

Lectures: Monday, Wednesday, Friday 8:30-9:20 a.m. in MACN room 105

Laboratories: Monday, Tuesday, Wednesday and Thursday 2:30-3:50 p.m. or 4:00-5:20 p.m. depending on section, in ANNU room 110.

1.3 Final Exam

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

Exam currently scheduled: December 4 from 14:30 to 16:30; Location: TBA

2 Instructional Support

Teaching Strategies:

Lectures – The lectures will present an overview of each topic with examples of applications. Problems will be used to illustrate the importance of the physiological principles under discussion. Opportunity for questions and discussion will be provided.

Laboratory/tutorial sessions – A more complete description of these sessions will be provided in a separate handout to be distributed during the first lab period. The laboratory sessions will provide students with an opportunity to integrate knowledge of physiological principles to an understanding of system function within the whole animal, and to apply these principles to problem-solving and case discussion exercises.

2.1 Instructional Support Team

Instructor: Gregoy Bedecarrats
Email: gbedecar@uoguelph.ca
Telephone: +1-519-824-4120 x53692
Office: ANNU 223
Office Hours: After class, Monday, Wednesday, Friday from 9:30-10:30

Lab Co-ordinator: Julie Kim
Email: jungmi@uoguelph.ca
Telephone: +1-519-824-4120 x56477
Office: ANNU 254
Office Hours: Dr. Julie Kim will serve as laboratory co-ordinator for this course. As such, most enquiries about lab schdeule and content should be directed to her attention.

Email is the preferred means of communication

2.2 Teaching Assistants

Teaching Assistant: Tanka Khanal
Email: tkhanal@uoguelph.ca
Office Hours: Depending on lab schedule

Teaching Assistant: Christine Bone
Email: cbone@uoguelph.ca
Office Hours: Depending on lab schedule

Teaching Assistant: Sharareh Jahanbin
Email: sjahanbi@uoguelph.ca
Office Hours: Depending on lab schedule

Teaching Assistant: Ariane France
Email: afrance@uoguelph.ca
Office Hours: Depending on lab schedule

Teaching Assistant: Matthew Wong
Email: mwong17@uoguelph.ca
Office Hours: Depending on lab schedule

3 Learning Resources

Course website:

The official website for ANSC*3080 is located on the CourseLink server. You can access the site using your central login username and password. The slides from lectures will be posted as ppt and as pdf (hand out) files on the website at least 2 days prior to lectures. All additional materials and important notices will be posted on the course website.

A “chat room” will be open on CourseLink for questions and answers related to course material and content. Participants (students) are encouraged to answer other participant’s questions. However, I (the instructor) will be moderating (answering questions) the room at least 3 times per week.

3.1 Recommended Resources

The Physiology Coloring book by W. Kapit, R.I. Macey and E. Meisami (2nd edition), Benjamin/Cummings Science Publishing. (Textbook)

Inexpensive alternative. Focuses on human physiology but applicable to all animals.

Functional Anatomy and Physiology of Domestic Animals by W.O. Reece (3rd edition), Lippincot Williams and Wilkins Publishing. (Textbook)

Physiology of Domestic Animals (Other)

<http://www.scanvetpress.com>

Used extensively for pictures and diagrams shown in lecture.

Human Physiology by S.I. Fox (10th editions) (Other)

On reserve at the library.

Human Physiology: The mechanism of body function by A.J. Vander, J.H. Sherman and D.S. Luciano (8th editions) (Article)

On reserve at the library.

Duke’s Physiology of Domestic Animals by M.J. Swenson and W.O. Reece (Other)

On reserve at the OVC library.

4 Learning Outcomes

4.1 Course Learning Outcomes

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

1. Problem Solving & Critical Thinking: Through the combination of lectures, laboratory sessions and case studies, students will be able to critically evaluate ideas and arguments by gathering and integrating relevant information, assessing its credibility, and synthesizing evidence to formulate a position. More specifically, students will be able to

apply their knowledge and reasoning skills to physiological problems involving the major farm animal species. This outcome will be evaluated in laboratory quizzes and via “problem solving” questions in the final examination.

2.

Breadth & Depth of Understanding in a Particular Scientific Discipline: At the end of this course students will be able to apply the core concepts of math, physics, chemistry and biology to understand physiological processes. In addition, students will possess a foundational knowledge pertaining to function of the body, with particular reference to the major farm animal species. This outcome will be evaluated by the various quizzes and examinations.

3.

Literacy: By the end of this course students will be familiar with and able to use relevant physiological terms (the language of physiology). This outcome will be evaluated by the various quizzes and examinations.

5 Teaching and Learning Activities

5.1 Lecture

Fri, Sep 6, 8:30 AM - 9:20 AM

Topics: Course Introduction

Mon, Sep 9, 8:30 AM - 9:20 AM

Topics: Homeostasis and system integration (case of thermoregulation)

Wed, Sep 11, 8:30 AM - 9:20 AM

Topics: Neurophysiology I: Nerve cell function / Synaptic transmission

Fri, Sep 13, 8:30 AM - 9:20 AM

Topics: Neurophysiology II: Functional anatomy of the brain and spinal cord

Mon, Sep 16, 8:30 AM - 9:20 AM

Topics: Neurophysiology III: Reflex arcs and flow of information

Wed, Sep 18, 8:30 AM - 9:20 AM

Topics: Neurophysiology IV: Autonomic nervous system

Fri, Sep 20, 8:30 AM - 9:20 AM

Topics: Cardiovascular I: Heart and great vessels

Mon, Sep 23, 8:30 AM - 9:20 AM

Topics: Cardiovascular II: Cardiac function and control

Wed, Sep 25, 8:30 AM - 9:20 AM

Topics: Cardiovascular III: Blood pressure and flow

Fri, Sep 27, 8:30 AM - 9:20 AM

Topics: Cardiovascular IV: Control of blood Volume

Mon, Sep 30, 8:30 AM - 9:20 AM

Topics: Catch-up lecture / review for mid-term

Wed, Oct 2, 8:30 AM - 9:20 AM

Topics: Respiratory system I: Structure / Ventilation

Fri, Oct 4, 8:30 AM - 9:20 AM

Topics: **MIDTERM EXAMINATION (in class)**

Covers homeostasis, nervous system and cardiovascular system.

Mon, Oct 7, 8:30 AM - 9:20 AM

Topics: Respiratory system II: Gas exchange / Oxygen transport

Wed, Oct 9, 8:30 AM - 9:20 AM

Topics: Respiratory system III: Control of respiration

Fri, Oct 11, 8:30 AM - 9:20 AM

Topics: Guest Lecture: Pathophysiology of cardiovascular / nervous and or respiratory systems (for your personal information, not part of the evaluated material)

Mon, Oct 14

Topics: **THANKSGIVING - NO CLASS**

Wed, Oct 16, 8:30 AM - 9:20 AM

Topics:	Endocrinology I: Introduction / Major glands and hormones
Fri, Oct 18, 8:30 AM - 9:20 AM	
Topics:	Endocrinology II: Principle of hormone action/Hypothalamus-pituitary axis
Mon, Oct 21, 8:30 AM - 9:20 AM	
Topics:	Endocrinology III: Insulin, growth hormone action
Wed, Oct 23, 8:30 AM - 9:20 AM	
Topics:	Endocrinology IV: Thyroid, adrenal function / Calcium metabolism
Fri, Oct 25, 8:30 AM - 9:20 AM	
Topics:	Endocrinology V: Importance of Thyroid and adrenal hormones function
Mon, Oct 28, 8:30 AM - 9:20 AM	
Topics:	Reproduction I: Sexual differentiation
Wed, Oct 30, 8:30 AM - 9:20 AM	
Topics:	Reproduction II: Male general anatomy
Fri, Nov 1, 8:30 AM - 9:20 AM	
Topics:	Reproduction III: Spermatogenesis
Mon, Nov 4, 8:30 AM - 9:20 AM	
Topics:	Reproduction IV: Female general anatomy
Wed, Nov 6, 8:30 AM - 9:20 AM	
Topics:	Reproduction V: Ovarian cycle, ovulation / Menstrual cycle
Fri, Nov 8, 8:30 AM - 9:20 AM	
Topics:	Urinary system I: Kidney structure function
Mon, Nov 11, 8:30 AM - 9:20 AM	

Topics: Urinary system II: Urine formation

Wed, Nov 14

Topics: Urinary system III: Water and sodium regulation

Fri, Nov 16

Topics: Sensory system I: Gustation / Olfaction

Mon, Nov 18, 8:30 AM - 9:20 AM

Topics: Sensory system II: Audition / Equilibrium

Wed, Nov 20, 8:30 AM - 9:20 AM

Topics: **LABORATORY EXAMINATION (in class)**

Fri, Nov 22, 8:30 AM - 9:20 AM

Topics: Sensory III: Nociception, sense of pain

Mon, Nov 25, 8:30 AM - 9:20 AM

Topics: Catch up lecture 1

Wed, Nov 27, 8:30 AM - 9:20 AM

Topics: Catch-up lecture 2

Fri, Nov 29, 8:30 AM - 9:20 AM

Topics: Review session (Thanks Giving Monday schedule)

Topics: FINAL EXAM (location and time TBA)

5.2 Lab

Mon, Sep 9 - Fri, Sep 13

Topics: No Laboratory scheduled

Mon, Sep 16 - Fri, Sep 20

Topics: Nervous System Laboratory - Structure function (brain and major nerves)

References: Review of principle - Action Potential
T.A.: Julie Kim; Sharareh Jahanbin; Matthew Wong - ANNU 110

Evaluation: On-site Training Quiz

Mon, Sep 23 - Fri, Sep 27

Topics: Cardiovascular Laboratory - Structure function (Heart/Major Vessels)

References: Review of principle - ECG; coupling conduction/contraction
T.A.: Christine Bone; Tanka Khanal - ANNU 110

Evaluation: On-site Quiz; Short Problems 2%

Mon, Sep 30 - Fri, Oct 4

Topics: Case Study I - Nervous and Cardiovascular Systems

TA: Gregoy Bedecarrats

Specific clinical cases pertinent to the nervous and cardiovascular systems will be discussed

Evaluation: Not Marked.

Mon, Oct 7 - Fri, Oct 11

Topics: Respiratory System Laboratory - Structure function (airways/lung)

References: Review of principle - Gas Exchange
T.A.: Julie Kim; Sharareh Jahanbin; Matthew Wong - ANNU110

Evaluation: On-site quiz; Short Problems 2%

Mon, Oct 14 - Fri, Oct 18

Topics: Thanksgiving Week - No Labs

Mon, Oct 21 - Fri, Oct 25

Topics: Endocrinology Laboratory - Major Glands Structure Function

References: Review of Principle - Feedback Mechanism

T.A.: Julie Kim; Sharareh Jahanbin; Tanka Khanal - ANNU 110

Evaluation: On-site Quiz; Short Problems 2%

Mon, Oct 28 - Fri, Nov 1

Topics: Case Study II - Respiratory and Endocrinology Systems

T.A.: Gregoy Bedecarrats - ANNU 110

Specific clinical cases pertinent to the respiratory and endocrine systems will be discussed

Evaluation: Not graded.

Mon, Nov 4 - Fri, Nov 8

Topics: Male Reproduction Laboratory - Male Anatomy and Semen Collection/Processing

T.A.: Julie Kim; Christine Bone; Ariane France - ANNU 110

Evaluation: On-site Quiz; Short Problems 2%

Mon, Nov 11 - Fri, Nov 15

Topics: Female Reproduction Laboratory - Female Reproductive System/Ovulation

T.A.: Julie Kim; Ariane France; Tanka Khanal TBA - ANNU 110

Evaluation: On-site Quiz; Short Problems 2%

Mon, Nov 18 - Fri, Nov 22

Topics: No Labs this week.

Lab exam Wednesday Nov 20 during lecture time (in class)

Laboratory Exam Monday November 19; In-Class; 20%

6 Assessments

The mid-term evaluation accounts for **30 %** of the final mark and will be composed of multiple choice AND short answer questions. The final evaluation accounts for **40 %** of the final mark and will be composed of multiple choice **AND** short answer questions, **AS WELL AS** short problems solving. The laboratory component accounts for **30 %** of the final mark, which includes 5 ON-SITE quiz/exercises (10 % total) and a laboratory exam (20 %).

Please note that the final examination IS NOT cumulative, meaning that no questions will be designed to specifically target the material covered prior to the midterm . However, as all systems covered during the semester are integrated, remembering that is key for a full understanding of the subject and may help answer some of the problem solving questions.

6.1 Marking Schemes & Distributions

Midterm examination (in class): 30%

Final examination (TBA): 40%

Laboratory component (30%): In class quizzes 10%; Lab examination 20%

6.2 Assessment Details

Mid-Term (30%)

Date: Fri, Oct 11, 8:30 AM - 9:20 AM, In-Class

Learning Outcome: 2, 3

Multiple Choice/Short Answers

Final Exam (40%)

Date: Wed, Dec 4, 2:30 AM - 4:30 AM, TBA

Learning Outcome: 1, 2, 3

Multiple Choices/Short Answers/Problem Solving

Laboratory Quizzes (10%)

Date: Mon, Sep 16 - Fri, Nov 15, ANNU 110

Learning Outcome: 1, 2, 3

One practice and five graded quizzes (2% each) will be schedule thoroughout the semester (see laboratory schedule for details)

Laboratory Exam (20%)

Date: Wed, Nov 20, 8:30 AM - 9:20 AM, In-Class

Learning Outcome: 1, 2, 3

Short Answers, Problem Solving

7 Course Statements

7.1 Grading Policies

Laboratory quizzes are to be completed during and handed over at the end of each laboratory session. Students will be given their corrected quiz back the following week. Midterm and laboratory examinations will be conducted in class and corrected exams will be returned to students within 2 weeks.

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-reg-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>
