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-Requisite(s): BIOC*2580 or EQN*2040
Restriction(s): Registration in BSC(Agr), BSC.ABIO or BBRM.EQM, Minor in Agriculture.

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

Laboratories: Monday, Tuesday, Wednesday and Thursday 2:30-4:00 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: Thursday December 13th, 2:30-4:30 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 principle 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 Instructor(s)
Gregory 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

2.2 Instructional Support Team
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 schedule and content should be directed to her attention.

Email is the preferred mean of communication

2.3 Teaching Assistant(s)
Teaching Assistant: Rathnayaka (Amila) Bandara
Email: rbandara@uoguelph.ca
Office Hours: Depending on lab schedule

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

Teaching Assistant: George Hall
Email: ghall02@uoguelph.ca
Office Hours: Depending on lab schedule

Teaching Assistant: Charlene Hanlon
Email: chanlon@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 Resource(s)

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, student 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

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic(s)</th>
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<tbody>
<tr>
<td>Fri, Sep 7</td>
<td>Course Introduction</td>
</tr>
<tr>
<td>Mon, Sep 10</td>
<td>Homeostasis and system integration (case of thermoregulation)</td>
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<tr>
<td>Wed, Sep 12</td>
<td>Neurophysiology I: Nerve cell function / Synaptic transmission</td>
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<tr>
<td>Fri, Sep 14</td>
<td>Neurophysiology II: Functional anatomy of the brain and spinal cord</td>
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<tr>
<td>Mon, Sep 17</td>
<td>Neurophysiology III: Reflex arcs and flow of information</td>
</tr>
<tr>
<td>Wed, Sep 19</td>
<td>Neurophysiology IV: Autonomic nervous system</td>
</tr>
<tr>
<td>Fri, Sep 21</td>
<td>Cardiovascular I: Heart and great vessels</td>
</tr>
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<td>Mon, Sep 24</td>
<td>Cardiovascular II: Cardiac function and control</td>
</tr>
<tr>
<td>Wed, Sep 26</td>
<td>Cardiovascular III: Blood pressure and flow</td>
</tr>
<tr>
<td>Fri, Sep 28</td>
<td>Cardiovascular IV: Control of blood Volume</td>
</tr>
<tr>
<td>Mon, Oct 1</td>
<td>Guest Lecture: Pathophysiology of cardiovascular and nervous systems</td>
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<tr>
<td>Wed, Oct 3</td>
<td>Catch-up lecture / review for mid-term</td>
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<tr>
<td>Fri, Oct 5</td>
<td>MID-TERM EXAMINATION (in class)</td>
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<tr>
<td>Wed, Oct 10</td>
<td>THANKSGIVING, NO CLASS</td>
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<tr>
<td>Fri, Oct 12</td>
<td>Respiratory system I: Structure / Ventilation</td>
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<td>Mon, Oct 15</td>
<td>Respiratory system II: Gas exchange / Oxygen transport</td>
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<td>Mon, Oct 15</td>
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<td>Date</td>
<td>Topic(s)</td>
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<tr>
<td>Wed, Oct 17</td>
<td>Endocrinology I: Introduction / Major glands and hormones</td>
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<tr>
<td>Fri, Oct 19</td>
<td>Endocrinology II: Principle of hormone action/Hypothalamus-pituitary axis</td>
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<tr>
<td>Mon, Oct 22</td>
<td>Endocrinology III: Insulin, growth hormone action</td>
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<tr>
<td>Wed, Oct 24</td>
<td>Endocrinology IV: Thyroid, adrenal function / Calcium metabolism</td>
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<tr>
<td>Fri, Oct 26</td>
<td>Endocrinology V: Importance of Thyroid and adrenal hormones function</td>
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<tr>
<td>Mon, Oct 29</td>
<td>Reproduction I: Male general anatomy</td>
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<td>Wed, Oct 31</td>
<td>Reproduction II: Spermatogenesis</td>
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<tr>
<td>Fri, Nov 2</td>
<td>Reproduction III: Female general anatomy</td>
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<tr>
<td>Mon, Nov 5</td>
<td>Reproduction IV: Ovarian cycle, ovulation / Menstrual cycle</td>
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<tr>
<td>Wed, Nov 7</td>
<td>Urinary system I: Kidney structure function</td>
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<td>Fri, Nov 9</td>
<td>Urinary system II: Urine formation</td>
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<tr>
<td>Mon, Nov 12</td>
<td>Urinary system III: Water and sodium regulation</td>
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<tr>
<td>Wed, Nov 14</td>
<td>Sensory system I: Gustation / Olfaction</td>
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<tr>
<td>Fri, Nov 16</td>
<td>Sensory system II: Audition / Equilibrium</td>
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<tr>
<td>Mon, Nov 19</td>
<td>LABORATORY EXAMINATION (in class)</td>
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<tr>
<td>Wed, Nov 21</td>
<td>Physiology of senses III: The eye and vision</td>
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<tr>
<td>Fri, Nov 23</td>
<td>Physiology of senses IV: Pain</td>
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<tr>
<td>Mon, Nov 26</td>
<td>Catch-up lecture 1</td>
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<tr>
<td>Wed, Nov 28</td>
<td>Catch-up lecture 2</td>
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</table>
Fri, Nov 30  
Topic(s): Review session (Monday schedule)  
Topic(s): FINAL EXAM (location and time TBA)

5.2 Lab

Week 1  
Topic(s): Sept 10 - 14: No Lab

Week 2  
Topic(s): September 17 - 21: Nervous System - Structure function (brain and major nerves)  
Reference(s): Review of principle - Action Potential  
T.A.: Julie Kim; Gregoy Bedecarrats - ANNU 110

Evaluation: On-site Training Quiz

Week 3  
Topic(s): Sept 24 - 28: Cardiovascular - Structure function (Heart/Major Vessels)  
Reference(s): Review of principle - ECG; coupling conduction/contraction  
T.A.: Julie Kim; Rathnayaka (Amila) Bandara - ANNU 110

Evaluation: On-site Quiz; Short Problems 2%

Week 4  
Topic(s): October 1 - 5: Case Study - Nervous and Cardiovascular Systems  
TA: Gregoy Bedecarrats

Specific clinical cases pertinent to the nervous and cardiovascular systems will be discussed  
Evaluation: Not Marked.

Week 5  
Topic(s): Thanksgiving Week - No Labs

Week 6  
Topic(s): October 15 - 19: Respiratory System - Structure function (airways/lung)  
Reference(s): Review of principle - Gas Exchange  
T.A.: Julie Kim; Rathnayaka (Amila) Bandara - ANNU110

Evaluation: On-site quiz; Short Problems 2%
Week 7

**Topic(s):** October 22 - 26: Endocrinology - Major Glands

**Reference(s):** Review of Principle - Feedback Mechanism

T.A.: George Hall; Christine Bone - ANNU 110

Evaluation: On-site Quiz; Short Problems 2%

Week 8

**Topic(s):** October 29 - Nov 2: Case Study - Respiratory/Endocrinology

T.A.: Gregoy Bedecarrats - ANNU 110

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

Evaluation: Not graded.

Week 9

**Topic(s):** Nov 5 - 9: Male Reproduction - Male Anatomy and Semen Collection

T.A.: Cristine Bone; Charlene Hanlon - ANNU 110

Evaluation: On-site Quiz; Short Problems 2%

Week 10

**Topic(s):** Nov 12 - 16: Female Reproduction - Female Reproductive System/Ovulation

T.A.: Charlene Hanlon; George Hall - ANNU 110

Evaluation: On-site Quiz; Short Problems 2%

**Topic(s):** No Labs. Lab exam Monday Nov 19 during lecture time (in class)

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

6 Assessments

The mid-term evaluation comprises 30 % of the final mark and will be composed of multiple choice AND short answer questions. The final evaluation comprises of 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 comprises 30 % of the final mark, which includes 5 ON-SITE quiz/exercises (10 % total) and a laboratory exam (20 %).
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 5, 8:30 AM - 9:20 AM, In-Class
Multiple Choice/Short Answers

Final Exam (40%)
Date: TBA
Multiple Choice/Short Answers/Problem Solving

Laboratory Quizzes (10%)
Date: Mon, Sep 17 - Fri, Nov 16, ANNU 110
One practice and five graded quizzes (2% each) will be schedule throughout the semester (see laboratory schedule for details)

Laboratory Exam (20%)
Date: Mon, Nov 19, 8:30 AM - 9:20 AM, In-Class
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: email 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 regulations and procedures for Academic Consideration are detailed in the Undergraduate Calendar.

8.3 Drop Date
Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for Dropping Courses are available in the Undergraduate Calendar.

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.

More information: www.uoguelph.ca/sas

8.6 Academic Misconduct

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 is detailed in the Undergraduate Calendar.

8.7 Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate 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 which apply to undergraduate, graduate and diploma programs.