



## **ANSC\*4290 Swine Nutrition**

Fall 2019

Section(s): C01

Department of Animal Biosciences

Credit Weight: 0.50

Version 1.00 - August 30, 2019

---

### **1 Course Details**

#### **1.1 Calendar Description**

This course is designed to explore details of evaluating feed ingredients and formulating diets for swine. Students will use models to evaluate various aspects of nutrient partitioning for growth and reproduction in pigs.

**Pre-Requisites:** ANSC\*3120

#### **1.2 Course Description**

This is a course designed to explore details of evaluating feed ingredients and feeding programs for swine, as well as the use of pigs as models for other non-ruminant animals and humans, to better understand nutrition concepts. Students will use models to evaluate various aspects of nutrient partitioning for growth and reproduction in swine.

#### **1.3 Timetable**

Tuesdays and Thursday 8:30 a.m. to 9:50 a.m. in ANNU, Room 204

**NOTE:** Some lectures slots will be computer labs

#### **1.4 Final Exam**

December 7, 2019; 8:30-10:30 am; Room TBA

Weight: 30%

- see WebAdvisor for final details

---

## 2 Instructional Support

### 2.1 Instructional Support Team

**Instructor:** Lee-Anne Huber  
**Email:** huberl@uoguelph.ca  
**Telephone:** +1-519-824-4120 x53347  
**Office Hours:** please email for appointments

### 2.2 Teaching Assistants

**Teaching Assistant:** Victoria Stewart  
**Email:** vstewa01@uoguelph.ca  
**Office Hours:** please email for appointments

---

## 3 Learning Resources

### 3.1 Recommended Resources

#### **Nutrient Requirements of Swine (Textbook)**

Nutrient requirements of swine. 2012. Eleventh Revised edition. National Research Council. National Academic Press, Washington, DC.

#### **Swine Nutrition (Textbook)**

Swine Nutrition. 2001. A. Lewis and L. Southern Ed. CRC Press, Boca Raton, Florida 33431 USA.

#### **Lab Manual and Guidelines (Lab Manual)**

- Please bring your own laptop to computer labs and ensure that you have downloaded and installed Chrome as your web browser. If you do not have access to a laptop, please inform the teaching assistant prior to the first computer lab so that a computer can be made available for you.
- Lab manuals will be distributed as part of the lab assignments; software used in the laboratories are available for use outside the computer lab (via a web browser).
- Guidelines for review paper on topic in swine nutrition will be posted in Courselink and accessible throughout the term.

## 3.2 Additional Resources

### Field Trips (Other)

Commercial feed mill

see further details in "Activities"

---

## 4 Learning Outcomes

### 4.1 Course Learning Outcomes

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

1. Become familiar with means to evaluate and manipulate the feeding value of swine feed ingredients.
  2. Become familiar with the basic concepts of nutrient utilization for growth and reproduction in swine.
  3. Develop skills to critically evaluate swine feeding programs, including preparation of reports.
  4. Develop awareness of current issues, challenges and opportunities in swine nutrition, including use of pigs as models for other non-ruminant animals and humans to better understand nutrition concepts.
  5. Cultivate a basis for continued acquisition of knowledge and further development of skills in swine and non-ruminant nutrition.
- 

## 5 Teaching and Learning Activities

### 5.1 Lecture

**Thu, Sep 5**

**Topics:** Course introduction & Lec 1. Digestive anatomy and physiology

**Tue, Sep 10**

**Topics:** Lec 2. Nutrients and anti-nutrients; nutrient availability I

**Thu, Sep 12**

<b>Topics:</b>	Lec 3. Nutrients and anti-nutrients; nutrient availability II
<b>Tue, Sep 17</b>	
<b>Topics:</b>	Lec 4. Principles of nutrient partitioning for growth and reproduction I
<b>Thu, Sep 19</b>	
<b>Topics:</b>	Lec 5. Principles of nutrient partitioning for growth and reproduction II
<b>Tue, Sep 24</b>	
<b>Topics:</b>	Final assignment overview and intro to the swine industry (Guest lecture: Laura Eastwood, OMAFRA)
<b>Tue, Oct 1</b>	
<b>Topics:</b>	NO LECTURE/work period
<b>Tue, Oct 8</b>	
<b>Topics:</b>	Current scientific swine nutrition issues
<b>Tue, Oct 15</b>	
<b>Topics:</b>	Fall study break-NO CLASSES or LAB
<b>Thu, Oct 17</b>	
<b>Topics:</b>	Lec 6. Swine feed ingredients I
<b>Tue, Oct 22</b>	
<b>Topics:</b>	Lec 7. Swine feed ingredients II; feed additives
<b>Thu, Oct 24</b>	
<b>Topics:</b>	Lec 8. Feed manufacturing: feedstuffs, formulation, processing

**Tue, Oct 29**

**Topics:** Feed mill tour, Wallenstein Feed Mill

**Tue, Nov 5**

**Topics:** NO LECUTRE/work period

**Thu, Nov 7**

**Topics:** Lec 9. Integrated nutrition – Starter pigs

**Tue, Nov 12**

**Topics:** Lec 10. Integrated nutrition - Growing finishing pigs

**Thu, Nov 14**

**Topics:** Issues in practical swine nutrition-industry perspectives (Guest lecture: Kayla Silva, Grand Valley Fortifiers)

**Tue, Nov 19**

**Topics:** Lec 11. Integrated nutrition - Sows

**Thu, Nov 21**

**Topics:** Flux Day

**Tue, Nov 26**

**Topics:** CAREER DAY

Instructor: A variety of swine industry employees will discuss career paths and opportunities

**Thu, Nov 28**

**Topics:** Last class, course review, questions and answers

## **5.2 Lab**

**Thu, Sep 26**

**Topics:** LAB 1 – Assignment 1 Nutrient partitioning (due Oct 10, 2019 in lab)

**Wed, Oct 3**

**Topics:** LAB 2a – Introduction to Watson Model (Guest lecture: Drew Woods, Trouw Nutrition)

**Thu, Oct 10**

**Topics:** LAB 2b – Assignment 2 Watson Model (due Oct 31, 2019 in lab)

**Thu, Oct 31**

**Topics:** LAB 3 – Assignment 3 NRC model (due Nov 21, 2019 at 5 pm)

## 6 Assessments

### 6.1 Marking Schemes & Distributions

This course is focused on applying nutrition concepts in practical scenarios. In particular, the laboratory assignments use commercial nutrient requirement models to explore nutrient partitioning, to estimate nutrient requirements, to formulate practical swine diets with least cost formulation software, and to understand other non-nutrition factors that influence how swine nutritionist formulate diets for producers. The distribution of grades is reflective of the focus of the course.

Name	Scheme A (%)
Lab Assignments	40
Review Paper or Case Study	30
Final Exam	30
Total	100

### 6.2 Assessment Details

**Lab Assignments (40%)**  
**Learning Outcome:** 1, 2, 3

- Familiarity with nutrient partitioning and utilization in swine, and concepts of least cost feed formulation, including relevant software
- Develop skills in using various computer programs

**Due Dates:**

- Lab 1: Oct 10, due in lab, 10%
- Lab 2b: Oct 31, due in lab, 15%
- Lab 3: Nov 21, 5 PM due to the TA, 15%

- All submissions via dropbox in courselink
- **Late penalties: 5% per day overdue**

**Review Paper or Case Study Report (30%)**

**Due:** Tue, Dec 3, 5:00 PM

Become familiar with relevant scientific literature on one specific aspect of swine nutrition. Work independently or in a small group to identify a relevant aspect of pig nutrition, identify and interpret appropriate scientific literature and write a critical analyses review paper. Alternatively, select a case study and work as a group of 4 to solve the nutrition issue using computer models from the labs and compile a report outlining and interpreting the possible solutions. Further details found on courselink and in class.

Sept. 25, 5 PM; select topic and email to Victoria Stewart (vstewa01@uoguelph.ca @uoguelph.ca)

Assessment of:

- Critical analyses of scientific concepts or commercial swine feeding practices
- Content, organization and clarity of written reports
- All submissions via dropbox in courselink
- **Late penalties: 5% per day overdue**

**Final Exam (30%)**

**Date:** Sat, Dec 7, 8:30 AM - , 10:30 AM, TBD

Understanding of key principles in swine nutrition - Application of knowledge for addressing swine and non-ruminant nutrient issues

---

## 7 Course Statements

### 7.1 Grading Policies

Due dates for assignments are indicated above. Assignments can be handed in lab or electronically (Dropbox, email). For late assignments, marks will be reduced by 5% for each day after the due date.

Detailed marking schemes are included in the assignments.

For the computer laboratories marks are given for presenting correct numerical values (about 35% of total) and the proper and concise interpretation of the numerical values (about 65%).

For the review paper or case studies, marks will be given for content (amount, depth and relevance of information; critical analyses/understanding of relevant concepts; appropriateness of conclusions; 70%) as well as clarity of the report (organization/use of appropriate headings, tables and figures; effective use of scientific references; proper use of language; 30%).

The final exam evaluates relevant knowledge (about 30%) and the integration and application of this knowledge to swine nutrition issues (about 70%).

### 7.2 Group Work

For the computer laboratories students are encouraged to work in groups, but assignments need to be handed in and will be marked for individual students.

For the literature review, students can work in groups of 2 and one report is expected from each group. For the case study, students can work in groups of 4 and one report is expected from each group. Students within groups will be given the same marks, unless students within the group all agree - in writing - to an uneven distribution of marks.

## 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>

---