



EQN*4020 Advanced Equine Nutrition

Winter 2019

Section(s): C01

Department of Animal Biosciences

Credit Weight: 0.50

Version 2.00 - January 04, 2019

1 Course Details

1.1 Calendar Description

This course focuses on the nutrition of horses at peak levels of performance or endurance. The use of real-world, case-study scenarios allows for the evaluation of practical feeding programs across a range of equine performance situations.

Pre-Requisite(s): EQN*2050 or NUTR*3210

1.2 Course Description

A course in which students will learn about nutrient requirements and nutritional idiosyncrasies of horses, formulation and manufacturing of horse feed and supplements, and be introduced to the principles of clinical nutrition of horses and important health issues that are related to nutrition and/or treated through nutritional approaches.

Students should have an established understanding of the general principle of animal nutrition and physiology. The material in the course will build on this background to enhance the understanding of nutrient metabolism and requirements in performance horses.

1.3 Timetable

Lectures: Monday/Wednesday/Friday at 3:30-4:20am in ANNU room 156.

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

1.4 Final Exam

Exam time and location is subject to change. Please see WebAdvisor for the latest information. **Currently scheduled for Tuesday, April 9th, 8:30am-10:30am.**

2 Instructional Support

2.1 Instructional Support Team

Instructor: Anna Kate Shoveller
Email: ashovell@uoguelph.ca
Telephone: +1-519-824-4120 x53140
Office: ANNU 240
Office Hours: Mondays 10:00 a.m. to noon.

2.2 Teaching Assistant(s)

Teaching Assistant: David Seymour MSc, Animal Nutrition
Email: seymourd@uoguelph.ca
Telephone: +1-519-824-4120 x58354
Office: ANNU 229
Office Hours: Appointment by e-mail.
 Responsible for quizzing and paper reviews.

Teaching Assistant: James Templeman MSc, Animal Nutrition
Email: jtemplm@uoguelph.ca
Office Hours: Appointment by e-mail.
 Responsible for formulation assignments.

3 Learning Resources

3.1 Electronic Notes

Electronic copy of course notes, handout (copies of the PPTslides) and other material will also be posted on a weekly basis on the course website. Copies of course notes **are not** intended to be the sole source of information, but guide an academic discussion on course material.

3.1 Additional Resources

None, but there are a number that will be valuable as you put together your assignments. These will be discussed in class, but please use the library and Web of Science/Google Scholar/Medline etc.

Students are encouraged to follow up lecture material with reading. Dr. Shoveller has multiple text books that she will happily sign out to you for 24-48 hours.

4 Learning Outcomes

4.1 Course Learning Outcomes

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

1. **Critical and Creative Thinking:** *Inquiry and Analysis, Problem Solving, Creativity, Depth and Breadth of Understanding* Critical and creative thinking is a concept in which one applies logical principles, after much inquiry and analysis, to solve problems in with a high degree of innovation, divergent thinking and risk taking. Those mastering this outcome show evidence of integrating knowledge and applying this knowledge across disciplinary boundaries. Depth and breadth of understanding of disciplines is essential to this outcome.
2. **Literacy:** *Information Literacy, Quantitative Literacy, Technological Literacy, Visual Literacy* Literacy is the ability to extract information from a variety of resources, assess the quality and validity of the material, and use it to discover new knowledge. The comfort in using quantitative literacy also exists in this definition, as does using technology effectively and developing visual literacy. Students will be required to critically review and understand the up-to-date scientific information on equine nutrition compiled in course notes and lecture material. The students will also be required to review scientific papers and technical documents, comprehend, and present ideas and findings into an imposed format.
3. **Communicating:** *Oral Communication, Written Communication, Reading Comprehension, Integrative Communication* Communicating is the ability to interact effectively with a variety of individuals and groups, and convey information successfully in a variety of formats including oral and written communication. Communicating also comprises attentiveness and listening, as well as reading comprehension. It includes the ability to communicate and synthesize information, arguments, and analyses accurately and reliably.
4. **Professional and Ethical Behaviour:** *Teamwork, Ethical Reasoning, Leadership, Personal Organization and Time Management* Professional and ethical behaviour requires the ability to accomplish the tasks at hand with proficient skills in teamwork and leadership, while remembering ethical reasoning behind all decisions. The ability for organizational and time management skills is essential in bringing together all aspects of managing self and others. Academic integrity is central to mastery in this outcome.

5 Teaching and Learning Activities

5.1 Lecture

Week 1

Topic(s): Introduction and Equine digestive anatomy and physiology.

1. Introduction to course
2. Equine digestive anatomy and physiology
3. Paper overview example

Week 2

Topic(s): Feeding behavior in horses

Friday, January 18th DUE IN CLASS: Paper overview #1 DUE (PAPER COPY ONLY): Bruschetta et al. 2018. The effect of training sessions and feeding regimes on neuromodulator role of serotonin, tryptophan, and beta-endorphin of horses. Journal of Veterinary Behaviour. 23: 82-86.

Week 3

Topic(s): Equine energy metabolism and requirements

Friday January 25th: IN CLASS quiz #1. Failure to sign-in and write the quiz under observation of the instructor and teaching assistant will be considered academic misconduct and addressed appropriately. Quizzes **cannot** be written on-line outside of class without receiving this penalty.

Week 4

Topic(s): Equine carbohydrate and protein metabolism and requirements

Friday, February 1st DUE IN CLASS: Paper overview #2 DUE (PAPER COPY ONLY): Jacob et al. 2018. Effect of dietary carbohydrates and time of year on ACTH and cortisol concentrations in adult and aged horses. Domestic Animal Endocrinology. 63: 15-22.

Week 5

Topic(s): Equine lipid metabolism and requirements

Week 6

Topic(s): Fat soluble vitamins

Friday, February 15th: IN CLASS quiz #2,

Week 7

Topic(s): SPRING BREAK

Feb 19, 21 and 23

Week 8

Topic(s): Water soluble vitamins and minerals

Ration formulation #1 DUE FRIDAY by 11:59pm through DROP BOX.

Week 9

Topic(s): Minerals and Anti-nutritional factors in equine feeds

Mar 4: Minerals continued

Mar 6 and 8: Anti-nutritional factors in equine feeds*

*Dr. T.K. Smith, Professor Emeritus, University of Guelph

Ration formulation #2 DUE FRIDAY by 11:59pm through DROP BOX.

Week 10

Topic(s): Nutritionally-related equine diseases
Friday March 16: In class quiz #3

Week 11

Topic(s): Nutritionally-related equine diseases and Water metabolism in horses

March 18: Nutritionally related equine disease continued

March 20 and 21: Water metabolism in horses

Friday, March 21st DUE IN CLASS: Paper overview #3 DUE (PAPER COPY ONLY): Effect of ad libitum intake of an electrolyte repository in horses that underwent a polo game. 2018. SEMINA-CEINCIAS AGRARIAS. 39(1): 187-197.

Week 12

Topic(s): Nutrition-related issues for sport horses

Week 13

Topic(s): Bringing it all together, group discussions based on course content.

6 Assessments

6.1 Assessment Details

3 Separate Paper Overviews (15%)

Date: , In class

Learning Outcome(s): 1,2,3,4

Friday(s), weekly, starting January 14th and outlined course activities.

We will first provide you with guidance of how to discuss aspects of the scientific literature. You need to write less than 200 words on the scientific paper as a brief news report, in language that any horse owner could understand. The 200 words should explain the background, the reason for the study, the key findings, and what those mean to horse owners. Paper overviews are due in class on Fridays and each worth 5% of your mark. No late assignments will be accepted except for compassionate reasons as outlined under academic consideration.

On-line or paper in class quizzes (30%)**Learning Outcome(s):** 1,2,3,4

Students will have a quiz every third week in class that will be sized to be done in 30 minutes. Content will be focused on material that had been covered over the preceding 3 weeks.

Formulation assignment 1 and 2 (20%)**Learning Outcome(s):** 1,2

Students will have three formulation assignments which will build on each other, starting with simple calculations to determine intake of hay and nutrients and then building in complexity with an added concentrate to meet requirements of performance horses. Further details will be provided as material is taught to students.

Group case study and formulation assignment (10%)

The last assignment focusing on formulation will have students working in a group to explain the scenario (provided to each group) and the nutritional management approach you would take to improve the **nutritional** management of that horse. Further details will be provided as material is taught to students.

Final exam, take home (25%)

Take home given on last class day. A fraction of those will show up on final and there will be a few additional questions.

7 Course Statements

7.1 Email Communication

As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

7.2 Grading Policies

Assignments will be graded in a timely fashion (within 10 days) and they will be returned to the students (except the final exam) with personalized feedback and/or general feedback in class to highlight some of the shortcomings in the students' work or understanding of the concepts.

7.3 Group Work

Assignments are expected to be unique work. All group members will receive the same grade for group work assignment unless otherwise approved by the Instructor. Any problems associated with group work should be brought to the attention of the instructor as soon as possible.

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>

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 course registration are available in the Undergraduate and Graduate 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>

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 can be found on the SAS website
<https://www.uoguelph.ca/sas>

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>