

EQN*4020 Advanced Equine Nutrition W (3-0) [0.5]

Course Outline

Winter 2018

General Information

Course Code: EQN*4020

Course Title: Advanced Equine Nutrition (3-0)

Course 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.

Credit weight: 0.5

Academic Department (or campus): Department of Animal Biosciences

Campus: Guelph

Semester Offering: W

Class Schedule and Location: Lectures: Monday/Wednesday/Friday 8:30-9:20am ANNU 156

Specific 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.

Instructor Information

Instructor Name: Anna-Kate Shoveller

Instructor Email: ashovell@uoguelph.ca

Office location and office hours: ANNU 240. Office hours: Mondays 10am-12pm, ANNU 240.

GTA Information

GTA Name: Dave Seymour

Responsibility: Quizzing

GTA Email: seymourd@uoguelph.ca

GTA office location and office hours: Appointment by e-mail

GTA Name: Ryley Vanderhout

Responsibility: Formulation assignments

GTA Email: rvande02@uoguelph.ca

GTA office location and office hours: Appointment by e-mail

Course Content

Specific Learning Outcomes:

The students will:

- 1) Understand digestive anatomy and physiology of the horse and the differences between the horse and other species.
- 2) Understand nutrient metabolism in the horse and how nutrient requirements differ in athletic training, maintenance, growth, reproduction and lactation.
- 3) Be able to formulate/evaluate appropriate rations for horses in various performance disciplines.
- 4) Understand anti-nutritional factors in common feeds used in horses.
- 5) Be familiar with the nutrient content of feedstuffs commonly used in the diet and understand how storage and the environment can affect nutrient density.
- 6) Be familiar with nutrition-related equine diseases and their effects on athletic performance.

The course is designed to meet the following Learning Outcomes of the University of Guelph:

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.

Students will be asked to assess and communicate information in a variety of formats and be assessed by the Instructor and Teaching Assistants on these methods.

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.

Lecture Content:

Week	Date(s)	Topics
1	Jan 8, 10 and 12	Introduction to course (15 min) Discussion: What are the largest nutritional problems in sport horses? Equine digestive anatomy and physiology
2	Jan 15, 17 and 19	Feeding behavior in horses and how this affects our management of them Paper overview #1 DUE: Dietary experience modifies horses' feeding behavior and selection patterns of three macronutrient rich diets. 2014. J. Anim. Sci. 92(4): 1524-1530.
3	Jan 22 and 24 Jan 26	Equine energy metabolism and requirements In class quiz #1
4	Jan 29, 31 and Feb 2	Equine carbohydrate and protein metabolism and requirements Paper overview #2 DUE: Characterizing ammonia emissions from horses fed different crude protein concentrations. 2017. J. Anim. Sci. 95(8): 3598-3608.
5	Feb 5, 7, and 9	Equine lipid metabolism and requirements
6	Feb 12 and 14 Feb 16	Fat soluble vitamins In class quiz #2
7	Feb 19, 21 and 23	SPRING BREAK/NO CLASSES
8	Feb 26 and 28 and Mar 2	Water soluble vitamins Ration formulation #1 DUE
9	Mar 5, 7 and 9	Mar 5: Minerals refresh Mar 7 and 9: Anti-nutritional factors in equine feeds*

		*Dr. T.K. Smith, Professor Emeritus, University of Guelph Ration formulation #2
10	Mar 12 and 14 Mar 16	Minerals In class quiz #3
11	Mar 19 Mar 21 and 23	Minerals Water metabolism in horses* Dr. M. Lindinger, Professor Emeritus, University of Guelph Paper overview #3 DUE: Submaximal exercise training, more than dietary selenium supplementation, improves antioxidants status and ameliorates exercise-induced oxidative damage to skeletal muscle in young equine athletes. 2017. J. Anim. Sci. 95(2): 657-670.
12	Mar 26, 28 and 30	Nutritionally-related equine diseases and nutrition-related issues for sport horses*
13	Apr 2, 4 and 6	Catch up and Bringing it all together, group discussions based on course content. Ration formulation #3

Labs: Not applicable

Seminars: Not applicable

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
3 separate paper overviews\$	Friday(s), in class Outlined above	15% (5% each)	All
3 separate formulation assignments	Fridays, in class Outlined above	30% (10% each)	All

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
3 quizzes	See class outline for in class individual quiz dates.	30% (10% each)	All
Final exam	Take home given on last class day. A fraction of those will show up on final and there will be a few additional questions.	25%	All

*** 10% per day will be assigned for late assignments. It is the student's responsibility to request consideration for late assignments or missed quizzes a minimum of 5 days prior to the deadline.**

Students are invited to do a fourth paper overview and take the 3 highest marks on the paper overview. To do this, you must make an appointment with Dr. Shoveller and decide on a paper together.

Paper overviews

We will first provide you with guidance of how to discuss aspects 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.

In class quizzing

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 assignments

Students will have three formulation assignments which will build on each other, starting with simple calculations to determine intake of hay and nutrients, building in complexity with an added concentrate to meet requirements of performance horses, and finishing off with a group assignment 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.

Course Resources

Required Texts: Not applicable

Recommended Texts:

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.

Lab Manual: Not applicable

Other Resources: 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.

Field Trips: Not applicable

Additional Costs: Not applicable

Course Policies

E-mail 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.

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 in writing, with your name, id#, and e-mail contact. [See the undergraduate calendar for information on regulations and procedures for Academic Consideration.](#)

Grading Policies:

Quizzes and 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.

Course Policy on 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.

Course Policy regarding use of electronic devices and recording of lectures:

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

In this course, your instructor will be using Turnitin, integrated with the CourseLink Dropbox tool, to detect possible plagiarism, unauthorized collaboration or copying as part of the ongoing efforts to maintain academic integrity at the University of Guelph. All submitted assignments will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site. A major benefit of using Turnitin is that students will be able to educate and empower themselves in preventing academic misconduct. In this course, you may screen your own assignments through Turnitin as many times as you wish before the due date. You will be able to see and print reports that show you exactly where you have properly and improperly referenced the outside sources and materials in your assignment.

Academic Consideration:

The University of Guelph is committed to supporting students in their learning experiences and responding to their individual needs and is aware that a variety of situations or events beyond the student's control may affect academic performance. Support is provided to accommodate academic needs in the face of personal difficulties or unforeseen events in the form of Academic Consideration.

Information on regulations and procedures for Academic Consideration, Appeals and Petitions, including categories, grounds, timelines and appeals can be found in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

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.

Detailed information regarding the Academic Misconduct policy is available in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

Accessibility:

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS), formerly Centre for Students with Disabilities (CSD), as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email sas@uoguelph.ca or visit the [Student Accessibility Services website \(http://www.uoguelph.ca/csd/\)](http://www.uoguelph.ca/csd/).

Course Evaluation Information:

End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions used as an important component in the Faculty Tenure and Promotion process, and as valuable feedback to help instructors enhance the quality of their teaching effectiveness and course delivery.

While many course evaluations are conducted in class others are now conducted online. Please refer to the [Course and Instructor Evaluation Website](#) for more information.

Drop period:

The drop period for single semester courses starts at the beginning of the add period and extends to the Fortieth (40th) class day of the current semester (the last date to drop a single semester courses without academic penalty) which is listed in [Section III \(Schedule of Dates\) of the Undergraduate Calendar](#).

The drop period for two semester courses starts at the beginning of the add period in the first semester and extends to the last day of the add period in the second semester.

Information about Dropping Courses can be found in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).