

Equine Nutrition

Course #: 11:067:390, Sect. 01 (In Class)

Spring Semester Odd Years – 3cr.

Prerequisites: Horse Management 11:067:384, and Animal Nutrition 11:067:330
Time: M, W 12:35 – 1:55
Location: BT 123

Instructor: Carey Williams, Ph.D.
Office: 213E Bartlett Hall
e-mail: carey.williams@rutgers.edu
Phone: 848-932-5529

Office Hours: Email for Appointment Only

Course Description:

This is an upper-level course focused on the proper way to feed horses and reason behind it.

Course Objectives:

At the conclusion of this course you will be able to:

1. Identify and compare the basic digestive anatomy of horses and how it relates to digestion and absorption (PLG 3)
 - Assessment: There will be in class exams and quizzes which will have questions directed toward assessing this learning goal.
2. Recognize the diversity of a horse's nutritional requirement based on different life stages (PLG 2 & 3)
 - Assessment: There will be in class exams, quizzes which will have questions directed toward assessing this learning goal.
3. Critically evaluate feeding programs and to recognize deficits/excesses in the rations and the signs to look for in horses fed the deficient or excess nutrients (PLG 2 & 3).
 - Assessment: There will be case studies throughout the class that will help evaluate the students understanding of ration evaluation. These will be assessed for content as well as clarity of expression and analysis of the case studies.
4. Critique feeds and supplements with regard to quality, nutrient content and necessity in a horses' ration (PLG 2 & 3).
 - Assessment: There will be case studies throughout the class that will help evaluate the students understanding of feed quality and nutrient content. These will be assessed for content as well as clarity of expression and analysis of the case studies.
5. Design a feeding program for a farm incorporating 3-4 different life stages and one problem horse (PLG 6)
 - Assessment: This project will be a written analysis of the farm's diet. Students will also peer-review another group's project. This project will be assessed for content, written clarity as well as understanding of the subject material.

Course Format:

- Classroom lectures – PowerPoint presentations,

- A few "hands-on" laboratories
- Videos and computer programs for ration balancing
- Class group written and oral project

Texts:

1. REQUIRED: Equine Nutrition and Feeding, ed. David Frape, 4th Edition, 2010, Wiley-Blackwell Publishing
2. REQUIRED SUPPLEMENTAL: National Research Council: Nutrient Requirements of Horses, 6th Revised Edition, 2007, <https://www.nap.edu/catalog/11653/nutrient-requirements-of-horses-sixth-revised-edition>, Can be purchased for \$99.95, or can be read online for FREE
3. SUPPLEMENTAL: Horse Pasture Management, ed. Paul H. Sharpe, 1st Edition, 2018, Academic Press, hard copy or eBook (<https://www.elsevier.com/books/horse-pasture-management/sharpe/978-0-12-812919-7>). Chapters will be supplied.
4. Videos on course website

Grading:

The grade is based on quizzes, exams, case studies and a final project. There will be 2 quizzes worth 30 points each, 2 exams worth 75 points each, 4 case studies worth 25 points, and a final project worth 120 points (plus 30 for the peer review). There will be NO makeup quizzes or exams! Homework turned in after the deadline will only be worth half credit! Quizzes and exams will include a combination of fill-in the blank, multiple choice, short answer and mini case study essay questions. There is no final exam for this class. The final project will serve as your final evaluation of your complete understanding of equine nutrition and the proper way to feed different types of horses.

Quizzes = 60	A = 90-100%
Exams = 150	B+ = 87-89%
Case Studies = 100	B = 80-86%
Final project = 150	C+ = 77-79%
Total Points = 460	C = 70-76%
	D = 60-69%
	F = < 59%

Final Project:

Students will work in groups of 3. Find your own group or if by the deadline I don't have you in a group I will make one for you. Each group will choose a farm (real or fictional, or any combination of these) and create a diet management plan for that farm. The farm must consist of at least 3 different life stages, and 1 'problem' horse. The diet management plan must consist of the total diet (forage, concentrates and any possible supplements) using key points we used in class. Pastures must be evaluated and used for at least 1 of the horses on the farm. If pasture is not used, you must provide a good justification as to why not. If the farm is fictional you can use one of the Rutgers pastures to evaluate however, approval MUST be obtained before entering any of the horse fields. Hay can be analyzed, or you can use what is found on equi-analytical.com (as shown in class). For more details please see the Group Project Assignment sheet for more details (or on the Canvas website).

Course Website:

Canvas: <https://rutgers.instructure.com/courses/21639>. Login to the site using your NetID and password. If you are enrolled in the course there should be a tab identified by the course number.

Late Work and Make-up Exams:

There will be NO makeup work of any kind! PLEASE check the website at the start of each week to see what will be expected! Very few exceptions will be made but if you feel you are one of the extreme circumstances please email me.

Other Policies:

All students are expected to follow University policies on academic integrity:

<http://academicintegrity.rutgers.edu/>

Support Services:

Please visit the support services page in Canvas

(https://rutgers.instructure.com/courses/21639/pages/support-services?module_item_id=1289000) in the course information on Academic Support, Disability Services, and Technology Accessibility and Privacy Policies.

Turnitin:

Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com (directly or via learning management system, i.e. Sakai, Blackboard, Canvas, Moodle) for the detection of plagiarism. All submitted papers 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.

Students who do not agree should contact the course instructor immediately.

Course Schedule:

Class	Lecture Topics	Deadlines/Exams*	Reading/Videos
Jan. 23	Course Intro, Syllabus, Pre-test Digestive Anatomy/Physiology		Frape: Ch 1 Videos: eXtension Intro Video (2:14) https://www.youtube.com/watch?v=pki-SfmCsNk&t=1s GI Tract of the Horse (1:32) https://www.youtube.com/watch?v=fdz78HU_fkM
Jan. 28 & 30	Digestive Anatomy/Physiology Conn. Fermentation and the gut microbiome (Jennifer Weinert, Guest Lecturer, PhD student in Animal Science)	Project groups due (30)	Frape: Ch 1 Purina 3D Horse Digestion Guide (8:00): https://www.youtube.com/watch?v=maWXVKI-gq4
Feb. 4 & 6	Nutrients		Frape: Parts of Ch 2, 3, 4 (see website for details) Videos: Hygain – Truth about Protein (6:07) (https://www.youtube.com/watch?v=9Z3rs1v_S8Q) Purina Carbohydrates in Horse Feed (7:02) https://www.youtube.com/watch?v=VtF7D1sx-l8
Feb. 11 & 13	Nutrients, conn Energy Metabolism	Quiz 1 (through Nutrients) (11)	Frape: Ch 2 (energy parts only) UMN Role of Minerals in the Horse (5:22) https://www.youtube.com/watch?v=jL4VH8_2Ifw
Feb. 18 & 20	Feedstuffs – Roughages Reading a Forage Analysis and Feed Tags (Lab)	Case Study 1 Assignment (18) Project outline due (20)	Frape: Parts of Ch 5 (see website for details) NRC: CH 8 & 10 Videos: UMN Evaluating Horse Hay (7:26) https://www.youtube.com/watch?v=2GF5jpOb574 UMN Hay Sampling (10:56) https://www.youtube.com/watch?v=sJMyvYyYZek 1) Dr. Williams: Taking a Pasture Sample (On Canvas) 2) Dr. Williams: Computer Demo on Reading and Evaluating Forage Analysis Results (On Canvas)
Feb. 25 & 27	Feedstuffs – Concentrates & Supplements		Frape: Parts of Ch 5 (see website for details) NRC: CH 8 Videos: UNL Horse Feed: Reading a Feed Tag (3:34) https://www.youtube.com/watch?v=jhu_YcuWNS0 3) Dr. Williams: Computer Demo on Different Feed Tags (On Canvas)
Mar. 4 & 6	Feedstuffs – Supplements, conn	Exam I (through Concentrates) (4)	Frape: Parts of Ch 5 (see website for details) NRC: CH 9 Videos: eXtension Feeding Supplements (4:05) https://www.youtube.com/watch?v=nJmDihZrLGg&t=8s UMN Mineral Supplements for the Horse (7:22) https://www.youtube.com/watch?v=nM-LgCoVf8o OSU Salt in the Diet (7:55) https://www.youtube.com/watch?v=cRyINCcHIXA

Mar. 11 & 13	Feeding the horse at maintenance Body Condition Score/Body weight (Lab)	Case Study Assignment 2 (11)	Frape: Parts of Ch 6 (see website for details) Videos: UMN Body Condition Scoring (8:05) https://www.youtube.com/watch?v=KoLRjMHHnBs UMD How to Find Your Horse's Body Weight (2:09) https://www.youtube.com/watch?v=G40V1Xf72q8 UMD Estimating Adult Horse Body Weight (10:41) https://www.youtube.com/watch?v=kZscilJ25K8
Mar. 18	NO CLASS! Spring Break!		
Mar. 25 & 27	Feeding the Stallion and Broodmare Feeding the Growing Horse	Project Rough Drafts due (27)	Frape: Ch 6 (breeding and growth sections), 7 & 8 Videos: Purina Feeding Lactating Mares (3:04) https://www.youtube.com/watch?v=o6CFTl_fuaQ Hygain - Growing Horse (5:51) https://www.youtube.com/watch?v=AdteQa0xMx0
Apr. 1 & 3	Feeding the Exercising Horse Feeding Myths	Casey Study 3 Assignment (1) Quiz 2 (through Broodmare/Stallion) (27)	Frape: Ch 9
Apr. 8 & 10	Feeding Behavior Feeding Management Ration Formulation (Lab)	Peer Reviews Due (10)	Frape: Parts of Ch 6 & App A (see website for details) NRC: CH 11 & 14 Videos: PSU - Feeding myths (12:33) https://www.youtube.com/watch?time_continue=45&v=lszZA-oAGMA 4) Dr. Williams: Computer Demo on Using the NRC Ration Formulation Software (On Canvas)
Apr. 15 & 17	Feeding the Old and Geriatric Horse Nutritionally Related Diseases and Disorders Feeding the Problem Horse	Case Study 4 Assignment Due (15)	Frape: Ch 11 & 12 NRC: CH 12 Videos: UMN Managing Over-weight Horses (7:00) https://www.youtube.com/watch?v=YhQGEOWTccs Purina Winter care for Senior Horses (4:44) https://www.youtube.com/watch?v=XuxfA5jywY4&index=25&list=PLF336B4465ECC2ADF Hygain Managing Laminitis (5:56) https://www.youtube.com/watch?v=PrJtZ5s6zg
Apr. 22 & 24	Pasture Management Evaluating a pasture (Lab**)		Frape: Ch 10 Pasture Text: online, see course website for details Videos: UMN When to Initiate Grazing (6:52) https://www.youtube.com/watch?v=TY6xo24Tv30 How to take a Soil Sample (On Canvas) Evaluating a Pasture (On Canvas) 5) Dr. Williams: Species Forage ID using Step Point (On Canvas)
Apr. 29 & May 1	Final Project Presentations	Exam II (through Pasture) (29)	
May 6	Final Projects Post-Test	Final Papers due (6)	

** This lab will be weather dependent. It may switch days. This will be decided at least two days prior to class.