ANSC 3316 Feed Manufacturing and Formulation

Instructor: Dr. Jamie Boyd
Office: RAS 108
Office Hours: M, W 1-3, TH 9-11:30 or by appointment
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Lecture: TH 12:30-1:45 RAS 135

Textbooks: The following textbook is recommended:

Applied Animal Nutrition, Feeds and Feeding by Peter R. Cheeke, 3rd edition

Amazon used: $45 or rent for $18

Course Description: Principles of ration formulation for various classes of livestock: feedstuff composition and identification, feed processing and ration formulation with special emphasis on computer application as applied to balancing and least-cost analysis. PR: ANSC 1419 (3 h credit)

Course Purpose: This course is designed to develop a basic understanding of livestock digestive physiology and feeds available for various classes of livestock and wildlife. The course focuses on feedstuff composition and ration formulation. Computer application as applied to balancing rations will be examined.

Course Goals: At the conclusion of this course the student should be able to:

- Understand the basic principles of digestive physiology of the various classes of animals
- Understand the classifications of feedstuff and the feeds that make up each classification
- Recognize feed ingredients on site
- Formulate diets and balance rations of the various classes of animal based upon knowledge of physiology and feed composition

Assessment Measures: Assessment of course goals will include the following:

- Each student will demonstrate, through written exams, the ability to relate their understanding of the course goals listed above.
- Through laboratory sessions, each student will gain experience and an appreciation of principles and techniques discussed in lecture.
- Each student will demonstrate their progress in understanding lecture and laboratory sessions through the completion of quizzes and problem sets.
- Each student will demonstrate the ability to integrate information from lecture, laboratory exercises and discussion through the completion of a class experiment involving chickens.

Departmental Projected Learning Outcomes:

- Recognize and be able to utilize animal breeds from a variety of domestic species.
- Comprehend the role of nutrition in the production of food animals.
- Understand the processes involved in producing meat products from a variety of domestic food animals.
- Select breeding animals using genetic information

Course Policies: All students are expected to abide by the following rules:

- **Academic integrity:** Academic dishonesty will not be tolerated. Any violation of academic integrity may (will probably) result in a grade of zero for an assignment or a grade of "F" for the course. Unless otherwise specified, group studying and discussion is permitted for homework, but **all work submitted must be the student's own and individual work.** No group work is permitted on quizzes or tests, which are closed note/book (unless otherwise specified).
- **Attendance:** Attendance will be taken daily and it is your responsibility to attend. Both lecture and laboratory periods will include interactive discussion and it is to your benefit to attend and participate. **There will be no make-up labs, quizzes, or tests without prior approval!** If you are absent from class and/or lab in excess number of days, you may be withdrawn from the course. Also, please be in class on time. It is rude to both the instructor and your classmates to arrive late. Regarding lab attendance, you must be present for the entire lab period to receive all points available. If you only attend part of a lab session, points will be deducted accordingly.
- **Cell Phones:** Cell phones must be turned off during class. If your phone rings during class, you will receive a warning. Subsequent violations will result in a point deduction from your final grade.
- **Late Work:** Assignments are always due at the time and date specified in the course schedule. Late assignments will be accepted: however, 20% will be deducted for each day the assignment is late. Therefore, no assignments will be accepted after 5 days past the due date.
- **Extra Credit:** I reserve the right to offer extra credit assignments at any time: however, the entire class will have the option to complete any of these assignments. There will be no extra credit assignments given on an individual basis.

Class Experiment: A class experiment will be conducted to illustrate the importance of proper nutrition in the growth and development of broiler chickens. The experiment will also allow students to gain an appreciation of the scientific method used to address specific questions and the challenges encountered when conducting research. Students will formulate diets for broilers (with my assistance and final approval) and will be responsible for the daily care and treatment of the animals, as well as collecting weight and health data. When students are scheduled for daily care and weighing sessions, attendance will be required and recorded. An attendance grade will be assigned for these events and absences and tardiness will result in grade reductions. Short assignments will be required throughout the experiment, with each assignment worth 10-50 points. The number of assignments will be determined based on the nature of the experiment, but it is likely that there will be 5-6 required assignments. Assignments must be submitted in a typed, written paragraph format. Assignments not completed in this format or submitted later than the designated time will not be considered and result in a grade of zero for that assignment. **A final report for the experiment will be due on May 5th by 5pm.**

Methods of Instruction: Several methods of instruction will be used, including but not limited to:

- **Lecture:** During most class sessions, lecture will be used to provide the basic concepts related to livestock and companion animal feeding and ration formulation.
- **Discussion:** Some days may utilize part of the class or laboratory period for discussion. Additionally, outside of class period activities may be conducted.
- **Homework/quizzes:** Homework assignments related to material in lecture and laboratory sessions will be assigned. Quizzes will be administered and dates are noted on the tentative schedule.

- **Class experiment:** As previously described, the class experiment will have short assignments which must be submitted in a typed, written paragraph form.

Accommodation Statement: Students with disabilities who believe that they may need accommodations in this class are encouraged to contact Mary Schwartze at the Counseling and Accessibility Services Office: Ferguson Hall 112 (432-837-8203) as soon as possible to ensure that such accommodations are implemented in a timely fashion.

Evaluation and Grading Scale: Your course grade will be based on the following components:

Exams and Quizzes: There will be 4 exams given throughout the semester. The first three exams will be given in class and the dates for these will be noted on the daily schedule. The fourth exam is a comprehensive final exam. There will be weekly quizzes throughout the semester, except during weeks where exams are scheduled. I will drop your lowest quiz grade from your final average. I reserve the right to give an unannounced pop quizzes at any time during the semester. There will be no make-up exams or quizzes without prior approval or a valid doctor's excuse. Voice or email messages are not considered valid excuses.

Spelling: Except for multiple choice or fill in the blank questions on exams, all exam answers, homework, and papers must be written in complete sentences. Each incomplete sentence, major grammatical error or misspelled word will result in the loss of points.

Lab assignments: Each lab will have assignments designed to reinforce the concepts taught in lecture. Due dates for lab assignments will be announced.

Ration balancing problems: Ration balancing problems sets will be assigned and due dates will be announced when you receive the assignment.

Other considerations: Exams may include multiple choice, fill in the blank, short answer, matching, and diagrams. The final exam is comprehensive (non-negotiable). Cell phones and programmable calculators are not permitted during exams or quizzes.

Points Available:

• 3, 1h exams (100 points each)	= 300
• Quizzes	= 90 (10 quizzes, lowest grade dropped)
• Feeding/Weighing Assignments (10pts each)	= 90
• Class experiment assignments (10-50pts each)	= 50-100
• Feed ID exam	= 50
• Comprehensive Final (150pts)	= 150
• Homework (pts variable)	= 50?
• Final experiment report	= 50
	730-850 possible points

Grading Scale:

A= 90-100%
B= 80-89 %
C= 70-79%
D= 60-69%
F= 59% or below

Tentative Schedule

Week	Lecture	Chapter
Jan 17-19	Nutrient categories, functions, req.	1
	Digestive tract physiology	1

Jan 24-26	Techniques to evaluate feeds & Feed Id Lab	1
	Cereal grains	2
Jan 31-Feb 2	Cereal milling by-products, grain overload	2
	Other concentrate energy feeds	3
Feb 7-9	Oilseed meals	4
Feb 9	**Exam 1**	
Feb 14-16	Grain legumes, by-products, animal proteins	4
	Nitrogen sources for ruminants, other sources	4
Feb 21-23	Vitamins and Minerals	7
	Diet Formulation lab	
Feb 28-Mar 2	Feed additives	8
	Formulate Broiler Diets	
Mar 7-9	Feeding Behavior / regulation of feed & water intake	9 & 10
	Mix broiler diets	
Mar 14-16	**Spring Break- no class**	
Mar 21	**Exam 2,** Receive/process chicks	
Mar 23	Forages-nutrients & factors affecting quality	5
	Forages- assessing quality and uses	5
Mar 28-30	Grazing systems & haymaking	6
	Feed manufacturing and processing	12
Apr 4	Feeding & nutrition of beef cattle	15
Apr 6	Rations Lab and **Feeds ID Exam**	
Apr 11	Feeding & nutrition of dairy cattle	17
Apr 13	**Exam 3**	
Apr 18-20	Feeding & nutrition of horses	18
	Rations Lab	
Apr 25-27	Feeding & nutrition of Exotics	22
May 2	**Review and Wrap up**	
May 5	**Final Lab report due**	
May 10th	**Final Exam 10:15-12:15pm**	

Important dates for quizzes and assignments:

Quizzes will be given at the beginning of class (1st 15 minutes) every Thursday on the following dates:
January: 26
February: 2, 16, 23
March: 2, 9, 30
April: 6, 20, 27

The final experimental report will be **due on May 5th by 5 pm**. The due dates for assignments related to the experiment or other homework will be announced in class.

SPRING SEMESTER 2017
January 17, Classes Begin
March 13-17 Spring Break (no classes)
April 14, Friday Good Friday (no classes)
May 5-10 Final Exams
May 11, Grades for graduating students due 10:00 AM