

Department of Animal Science

Spring 2015

ANSC 5327 Advanced Animal Nutrition

COURSE NUMBER/TITLE: ANSC 5327 Advanced Animal Nutrition

INSTRUCTORS: Dr. Byron C. Housewright, ph. 432-837-8413
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Online Course: Blackboard 9
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TEXT: Nutritional Biochemistry, 2nd Ed, Brody

COURSE OBJECTIVES: This course is designed to continue the nutrition education with emphasis in biochemical pathways and metabolic control of nutrient partitioning. Glycolysis, Krebs's Cycle and additional biochemical pathways will be discussed as well as ruminant specific nutrient metabolism related to VFAs.

- 1) Understanding of basic intermediary metabolic pathways including glycolysis, Krebs's Cycle and VFA metabolism.
- 2) Be able discuss the nutrient classes and their requirements, metabolism and function.
- 3) Knowledge of specific structure and function of the ruminant digestive tract including rumen fermentation.
- 4) Ability to discuss the endogenous control of metabolic pathways and how diet variations can affect nutrient flow.
- 5) Knowledge of the role nutrients play in health and reproduction and how diet manipulation can affect overall performance.

PROJECTED LEARNING OUTCOMES:

Student will demonstrate that he/she is able to:

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

GRADING POLICY:

Exams 5 @ 100 pts ea:	500 points total
Topic Reflections – 4 papers – 50 pts ea:	200 points total
Discussion Boards – 2 @ 50 pts ea:	100 points total
Research Project Design	200 points total

- A= 800 – 720
- B= 719 – 640
- C= 639 – 560
- D= 559 – 480
- F= 479 and below

- 1) **Quizzes** - Quizzes will be 40 multiple choice questions worth 2.5 pts ea for a total of 100 points for each quiz. Quizzes will be posted on a Thursday and you will be available until the Saturday, 2 days later until midnight. You will be allowed to attempt the quiz twice and your highest score will be recorded. Quiz dates are listed below in Dates to Remember section..
- 2) **Discussion Board** – A total of 2 discussion board topics will be posted during the semester and each discussion will be worth 50 points for a total of 100 points for this assignment group. Topics for the Discussion Boards will be posted by the instructor and students will have approximately 2 weeks to complete their required posts for each board. Students are to complete a minimum of 2 original posts and 3 replies to their classmates for each discussion board topic.

Discussion Board Notes

While this course is being taught at a distance, students are expected to be active participants in the classroom web-discussion exercises. The discussion board provides a venue to increase interaction and is used to replicate a traditional class discussion. To facilitate this discussion, the instructor will provide guiding questions for each discussion. However, as in a traditional format, students are encouraged to not only respond to question, but also pose questions to the group and instructor. Active participation in this way increases not only your knowledge, but the knowledge of others participating in the course. You will bring unique perspectives and questions that will benefit the instructor and your classmates.

- 3) **Topic Reflections** – A total of 4 short articles covering current topics of discussion in physiology will be provided at about 4 week intervals throughout the semester. Students are expected to write a short, opinion paper based on their impressions of the article. This paper should be no longer than two pages in length. Below I have included the grading rubric that will be used for these papers.

	Points
Clearly & effectively responds to assignment.	10
Demonstrated thorough understanding and interpretation of the article by summarizing.	10
Developed reflective thoughts supported by a variety of relevant facts	10

within the article, provided potential application of information and posed questions raised by the article.	
Clarity, organization & structure very evident.	10
Correct grammar, word usage, spelling, and punctuation.	10
Total	50

- 4) **Research Project Design:** This assignment will require you to design a research project to answer a question in animal physiology. Included in this design should be an introduction and materials and methods. You will need a minimum of 5 references from reliable, refereed, scientific journals. Your project should be original, master's level research. You can select a project area that is an extension of current knowledge, but not a redesign of research that has been done. I would anticipate that this paper will be around 4-5 pages in length with your introduction and justification being 1.5 to 2 pages and your materials and methods and design being approximately 2 pages. Your research topic is due on Friday, March 13, 2015. These will not be graded, but only to ensure you have something selected in time and allow us to refine your ideas if necessary.

Citation Style:

<http://www.journalofanimalscience.org/site/misc/JAS-InstructionsToAuthors.pdf>

Reasonable accommodations for students with disabilities:

If you have a disability that may require assistance or accommodation or if you have questions related to any accommodations for testing, not takers, readers, etc, please speak with me as soon as possible.

About Me:

I grew up in Stephenville, TX where my father was on faculty at Tarleton State University and my mother taught special education. After high school I attended Texas Tech University and received my undergraduate in Animal Science. From there I went to The University of Tennessee where I received my Masters and PhD in Ruminant Nutrition and Nutritional Physiology respectively. After finishing my PhD I worked until 2000 in industry as a technical service nutritionist, private nutrition consultant and director of nutrition for Con Agra. I began teaching in 2000 at Texas A&M-Commerce where I stayed until 2007. Going back into industry for a few years working as a nutritionist primarily in WI and then taught at Tennessee Tech University during the 2011-2012 academic year. I started at Sul Ross State University in the fall of 2012. During my academic career I have taught, General Animal Science, Anatomy and Physiology, Biochemistry, Livestock Management, Beef Production, Nutrition, Feeds and Feeding and Sheep and Goat Production among other courses.

Tentative Schedule of Weekly Topics: These are subject to alteration if time warrants.

Week of:	Topic covered
Jan. 19	Introduction
Jan. 26	Basic Chemistry

Feb. 2	Digestion and Absorption
Feb. 9	Dig & Absorption – Protein
Feb. 16	Digestion and Absorption of Lipids
Feb. 23	Digestion and Absorption of Carbohydrates
Mar. 2	Rumen Kinetics
Mar. 9	Rumen Kinetics
Mar. 16	SPRING BREAK
Mar. 23	Regulation of Energy Metabolism
Mar. 30	Glycolysis
Apr. 6	TCA Cycle
Apr. 13	Creatine and Glycogen
Apr. 20	Exercise Physiology
Apr. 27	Minerals
May 4	Vitamins

Dates to Remember:

Friday, February 6, 2015 – Topic Reflection 1
Thursday, February 12, 2015 – Quiz 1
Thursday, March 5, 2015 – Quiz 2
Friday, March 6, 2015 – Discussion Board 1 Closes
Friday, March 13, 2015 – Topic Reflection 2 & Proposal for Research Design
Thursday, March 26, 2015 – Quiz 3
Friday, April 10, 2015 – Topic Reflection 3
Thursday, April 16, 2015 – Quiz 4
Friday, April 24, 2015 – Topic Reflection 4 & Discussion Board 2 Closes
Wednesday, May 6, 2015 – Research Project Design
Monday, May 11, 2015 – Quiz 5

Distance Education Statement: Students enrolled in distance education courses have equal access to the university's academic support services, library resources, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should submit online assignments through Blackboard or SRSU email, which require secure login information to verify students' identities and to protect students' information. The procedures for filing a student complaint are included in the student handbook. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website.