

LECTURE SYLLABUS FOR ANSC 1401 - GENERAL ANIMAL SCIENCE
Semester/Year Classroom: AR 100, MWF: 12:00 – 12:50

Instructors: Course Coordinator
Email:

Text: **Lecture and Lab Notes (LN): GENERAL ANIMAL SCIENCE - Animal Science 1401**, Sam Jackson, editor. **2012 Ed.** Available only at **The Copy Outlet** on 2402 Broadway

Natural Science Core Statement: The objective of the study of the natural sciences component of a core curriculum is to enable the student to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the basis for building and testing theories. The natural sciences investigate the phenomena of the physical world.

Courses in this category focus on describing, explaining, and predicting natural phenomena using scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

College Level Competency Objective 1: Students graduating from Texas Tech University should be able to: explain some of the major concepts in the Natural Sciences and demonstrate an understanding of scientific approaches to problem solving, including ethics.

Core Curriculum.

This course satisfies 3 hours of the 6 SCH Life and Physical Science Core Curriculum requirement. The laboratory component of ANSC 1401 satisfies 1 hour of the 2 SCH science laboratory Texas Tech University graduation requirement. The following Learning Outcomes, some from the Texas Higher Education Coordinating Board and some from Texas Tech University, must be included in all Life and Physical Science classes in the Core and this is how they will be addressed and assessed.

Coordinating Board Objective 1. Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

ANSC 1401 will enhance critical thinking skills by using animals to demonstrate how biological systems function and how the many parts of the animal must function together to form a complete system. Significant time is spent in the course examining the impact of scientific interventions on animal performance and efficiency. Students must interpret scientific data and determine which techniques or enhancements should be used in different environmental conditions and production scenarios. Students must evaluate many different genotypes and phenotypes of animals and make critical thinking decisions regarding their usefulness in livestock production operations across the world.

Assessment will be by written exams and essays. Exams throughout the semester will use a combination of multiple-choice, matching, true/false and fill in the blank questions. All exams will be graded on a percentage basis. Essays will be graded using a rubric.

Coordinating Board Objective 2. Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication.

Students in ANSC 1401 are required to complete several exercises throughout the semester to

enhance their communication skills. Students write short essays to describe lab procedures, field trips and interpretation of lab results. Additionally, each student must construct and present a short Powerpoint presentation to the class related to a course topic of their choice. Students also participate in class discussions and are required to answer questions as a part of their daily grade.

Assessment will be by grading of written essays. Oral reports and discussions will be assessed using a rubric by the instructor.

Coordinating Board Objective 3. Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

Students in ANSC 1401 are encouraged to develop their empirical skills through assignments, lab write-ups and homework assignments. These include but are not limited to calculations of dry matter composition, carcass dressing percent calculations, graphing growth curves, calculating generation intervals, calculating selection differentials and calculating heritability estimates for economically important livestock production traits.

Assessment: Mastery of these skills is tested on examinations and lab reports. Lab reports will be graded using a rubric to insure reports meet requirements for descriptive content, grammar and mathematical calculations.

Coordinating Board Objective 4. Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Students work together in groups or teams during several exercises. One exercise in particular involves students working in teams of three to four students and assisting each other in the collection of carcass data on sheep, cattle and swine carcasses. This allows students to learn from each other as they master the various skills needed to grade and assign value to carcasses. Another example is during the Anatomy and Physiology section, students work together in the dissection of specimens and in the analysis of fecal samples for internal parasites.

Assessment: Homework and daily exercises. Daily exercises will be graded, corrected and returned to the students. Students will return to the lab the following week and redo the assignment using their corrected quizzes from the previous week. Improvement from the first assignment to the second will be recorded.

TTU Student Learning Objective 1. Demonstrate knowledge of the scientific method and to contrast it with other ways of understanding the world.

Students in ANSC 1401 are exposed to the scientific method through reading and when research data is presented in class. This course is set up to expose students to how the basic sciences impact animal agriculture throughout the world. The basis of the course is that students are exposed to Animal Science as a science and are required to understand Chemistry, Physiology, Biology, Genetics and Nutrition and how each is integrally a part of a normally functioning animal. Students are presented with research problems and must solve the problem and come up solutions based upon the development of a hypothesis and construct a protocol to answer the question. Research data is presented on all topics to explain how and why animal efficiency has improved in the past 50 – 100 years. Our students cannot hope to understand the whole animal if they are not able to understand how each of the fundamental sciences are involved in animal metabolism.

Assessment will be by written exams (Hour exams and comprehensive final exam). Students will have a comprehensive final exam which is weighted heavier than the hour exams to enable them to acquire more credit for mastering material that they did not fully master on earlier exams.

TTU Student Learning Objective 2. Demonstrate knowledge of the tools and methods used by scientists to study the natural world.

ANSC 1401 students are exposed to many current and past scientific methodologies. It is important that our students understand the early methods as well as improvements that have been made due to advances in the analytical sciences. Students are taught the importance of methods to collect data from live animals, cell culture and other in vitro systems. They have been taught how proximate analysis, ether extraction, amino acid and fatty acid analysis are used to study the composition of carcasses. Bioassays, radioimmunoassay (RIA's), and competitive binding assays are explained so students better understand the roles of hormones in reproductive and growth processes of animals.

Assessment will be by written exam questions related to these methods. Students must differentiate hormones, amino acids and testing methodologies for each on the exams.

TTU Student Learning Objective 3. Explain some of the major theories in the Natural Sciences.

We try to explain many of the phenomena that occur in natural science. Students completing ANSC 1401 will have learned about the role of photosynthesis and its vital importance in the animal food chain. Students should understand nutrient digestion, the role of microbes in polysaccharide digestion and the factors that influence carbohydrate metabolism. Significant time is spent learning about the fundamental principles of genetics, inheritance and the role of natural selection on animal adaptability to the environment. Students will also be exposed to embryology and understand the complex relationship of the fetus to the dam during gestation. They will also understand the area of animal growth and the many factors that influence the rate of growth as well as body composition differences that can be influenced by nutrition and hormones.

Assessment will be by written exam questions to test their knowledge of these theories. Students will learn to use a Punnett Square to determine coat color frequencies and this will be tested by assigning homework problems.

TTU Student Learning Objective 4. Describe how Natural Sciences research informs societal issues, including ethics.

Many of the topics covered in the course have direct application to society and ethics concerning both humans and animals. A major goal of ANSC 1401 is to inform students of the symbiotic relationship that exists between man and animals. The role of animals in the progression of mankind is significant. Students should understand that both man and animal have benefited from this relationship. The role of animal products in the diet of man is examined and discussed. Particular attention is paid to the health benefits of a diet that is well balanced and contains the proper input from all food groups. The epidemic of obesity in the world is examined and solutions are offered. Comparisons of human and animal data concerning obesity are discussed. The role of experimental animals (mice, pigs) to study human obesity is discussed. Ethical questions concerning animal research is a topic of discussion. The welfare of farm animals as well as companion animals is discussed. Several lectures pertaining to animal behavior and animal housing are presented to address the comfort and physiological needs of animals and the responsibility of livestock producers to ensure that animals under their care are treated humanely. Lastly, the role of antibiotics in society is examined. There are ethical questions

concerning antibiotic use in livestock as it relates to antibiotic resistance in bacteria. Students have the opportunity to examine data and discuss this issue and how it relates to both livestock production and human health.

Assessment will be by written exams and essays. A short question and answer session will follow the lecture on lipids by having students examine food and other items they have with them (chips, granola bars, lipstick, moisturizer) to reinforce how many of the types of lipids discussed were present in everyday items that the students consume daily.

Class Meeting	Topic and Assignment in Lecture Notes (LN)
1-2	Introduction, Animal Contributions to Society and Health and Career Opportunities, LN pp. 1 - 7. Dr. Sam Jackson
3	Last day to ADD a course
4-7	Horses - Web Sites. LN pp. 8 - 14. Dr. Sam Jackson
8-11	Sheep - Web Sites; LN pp. 35A - 39. Dr. Sam Jackson and Aaron Jennings
12	Goats - Web Sites; LN pp. 40 - 42. Dr. Sam Jackson
13, Tuesday	Hour Exam over all information covered in lecture or assigned through 2/11, AR 100 at 7:00 p.m.
14	Dairy Cattle - Web Sites; LN pp. 44 - 47. Tyler Harris
15	Swine - Web Sites; LN pp. 30 - 35, Tyler Harris
16-21	Beef Cattle - Web Sites; LN pp. 15- 22, 23 - 29. Dr. Sam Jackson and Aaron Jennings
22, Tuesday	Midterm Exam over all information covered in lecture or assigned through 3/1, AR 100 at 7:00 p.m.
23-27	Nutrition and Feeds and Feeding- LN pp. 61 - 67. Dr. Sam Jackson
28-29	Genetics and Animal Breeding - LN pp. 53 - 60. Tyler Harris
30-31	Growth and Development - LN pp. 78 - 83. Dr. Sam Jackson
	Last day to DROP a course
32, Thursday	Hour Exam over all information covered in lecture or assigned from 3/4 through 3/29, AR 100 at 7:00 p.m.
33-38	Reproductive Physiology - LN pp. 68 -73. Dr. Sam Jackson
39-41	A.I. and Embryo Transfer - LN pp. 74 - 77. Dr. Sam Jackson
42-44	Behavior of Animals and Adaptation to the Environment - LN pp. 84 - 87. Dr. Sam Jackson
45, Tuesday	Hour Exam over all information covered in lecture or assigned from 4/3 through 4/29, AR 100 at 7:00 p.m.
46-48	Animal Product Safety. Dr. Sam Jackson
49	FINAL EXAM

Evaluation of Student Performance:

3 One-hour examinations x 200 = **600**
 Mid-Term examination = **200**
 Final examination = **200**
 Course Total = **1,000**

Class Attendance:

Your grade will be reduced one letter grade for each four unexcused absences. Acceptable excuses are your documented illness, a death in your family, and a trip or class field day required by Texas Tech University.

Letter grades will be determined on a 90, 80, 70, 60% basis.

Lecture grade is 2/3 of course grade and lab grade is 1/3 of course grade.

Special Needs: See me if you have special needs and I can help you learn more easily.

UNIVERSITY POLICIES:

ADA Statement

Any student who because of a disability may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary accommodations. Students should present appropriate verification from Student Disability Services during the instructor's office hours or by appointment with the lead instructor. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact Student Disability Services office at 335 West Hall or 742-2405.

Withdrawal from a Course

The last day to withdraw from a class for any student is the 45th day of class which for this semester is March 27, 2013. Students will receive an automatic "W," regardless of the current grade in the class. There is no longer a grade of "WF." Students will not be able to drop a class after March 27, 2013 unless they withdraw from the university.

Scholastic Dishonesty

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standards of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offence and renders the offenders liable to serious consequences, possibly suspension.

Scholastic dishonesty includes but is not limited to, cheating, plagiarism, collusion, falsifying academic records, misinterpreting facts, and any act designed to give unfair academic advantage to the student or the attempt to commit such an act. Further information can be found in the *Student Handbook*.

Absence for Observance of a Religious Holiday

A student who intends to observe a religious holy day should make that intention known to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holiday shall be allowed to take an examination or complete an assignment scheduled for the day within a reasonable time after the absence. A student may not be penalized for the absence but the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

Web Sites for study of livestock breeds for exams:

www.ansi.okstate.edu/breeds

www.ag.auburn.edu/~sschmidt/breed_id2/index.html

