



Course Number/Title: AG149 Principles of Animal Science

Term/Year: Fall 2018

Credit Hours: 3

Department: AG

Prerequisite: None

Required Text: Field, Thomas and Taylor, Robert. *Scientific Farm Animal Production*. 11th Edition. Lincoln: Pearson Education. 2016.

CCC MISSION

Challenge students to adapt to a diverse society. **Create** opportunities for student growth. **Connect** student learning with professional experiences.

RATIONALE

To better understand the principles of Animal Science and how to incorporate these principles into an increasingly competitive farm animal industry.

COURSE DESCRIPTION

This course is designed to educate students on the basic production standards, animal reproduction, nutrition, diseases and marketing concepts of livestock production. This course is designed to be a building block course to enable students to gain a better perspective on livestock industries.

COURSE REQUIREMENTS/TIMELINE *This is the information to study for tests*

1. Learn and give examples of how animals contribute to human needs.
 1. Contributions to Food Needs
 2. Contributions to Clothing and Nonfood Products
 3. Contributions to Work and Power needs
2. Learn the basics of each livestock and poultry industry
 1. What is the global perspective verses the U.S perspective in each of the livestock and poultry industries
3. Learn and describe the red meat products

1. Understand their production, processing and composition as well as Kosher production
2. Understand the nutritional considerations of red meat
3. Understand the consumption, demand and marketing of red meat
4. Learn the basics of Poultry meat and egg productions
 1. Learn the composition of both the meat and eggs
 2. Learn the poultry products including meat, eggs, feathers and down and by products
 3. Learn the nutritional considerations as well as consumption and marketing
5. Learn the basics of milk and milk products
 1. Understand the basics of milk production
 2. Understand milk composition and the milk products in the U.S.
 3. Understand the health considerations of milk
 4. Understand the consumption and marketing of milk
6. Learn the basics of wool and mohair products
 1. Understand how wool and mohair are grown and the differences
 2. Learn the factors affecting the value of wool
 3. Learn the classes and grades of wool as well as wool marketing
 4. Learn the uses of wool and mohair.
7. Learn the by-products of animals and their uses
 1. Understand what is edible vs nonedible
 2. Understand the rendering industry and how to dispose of dead livestock
8. Learn the market classes and grades of livestock, poultry and eggs
 1. Learn the market classes and grades of red meat animals and be able to identify them
 2. Learn the market classes and grades of poultry products and be able to identify them
9. Learn to visually evaluate market animals
 1. Learn the external body parts in relation to the location of the wholesale cuts in the live animal
 2. Learn how to visually assess the livestock carcass

10. Reproduction
 1. Learn the female reproduction anatomy and function and estrous cycle
 2. Learn the male reproduction anatomy and function
 3. Learn the basic hormones involved in reproduction
 4. Learn Poultry reproduction and the differences from other livestock
 5. Learn the stages of pregnancy
 6. Learn the stages of parturition and understand when help should be called
11. A.I, Estrous Synchronization and Embryo Transfer
 1. Learn how semen is collected and processed
 2. Learn how to synchronize estrous and the drugs/hormones used to do so
 3. Learn the basics of embryo transfer
12. Genetics
 1. Learn the process of Mitosis and Meiosis and their differences
 2. Learn how gametes are produced
 3. Learn the processes of spermatogenesis and oogenesis
 4. Learn how and where fertilization occurs
 5. Learn the basics of DNA and RNA as well as Genes and Chromosomes
 6. Understand how Simple inheritance works and be able to do a Punnett square
 7. Learn about multiple gene pairs and gene interactions
 8. Understand the interactions between genes and the environment
 9. Know what biotechnology is and what can be expected in the future
13. Understand how genetics can be changed through selection
 1. Understand the importance of genetics to the livestock industry and the structure of the breeding industry
 2. Understand continuous variation and many pairs of genes and mating systems
 1. selection, selection differential, heritability and generation interval
 3. Understand how to predict genetic change and the evidence of genetic change
 4. Understand selection methods and the basis for selection
 5. Understand mating systems

1. inbreeding
 2. outbreeding
 3. forming new lines
14. Learn the nutrients and their functions
1. Learn what nutrients are and be able to list the basic nutrients water, carbohydrates, fats, proteins, minerals and vitamins
 2. Learn the proximate analysis of feed
 3. Understand the digestibility of feeds
 4. Understand feed and feed composition
15. Understand the Digestion and absorption of feed
1. Learn the differences between carnivores, omnivores and herbivores
 2. Learn the digestive tract of the monogastric and how it functions
 3. Learn the stomach of the ruminant and its 4 compartments and their functions
 4. Learn how ruminant digestion functions
16. Learn and Understand nutrient requirements
1. Nutrient requirements for body maintenance, growth, finishing, reproduction, lactation, egg laying, wool production and work
 2. Understand ration formulation
 3. Understand nutrient requirements for ruminants
17. Understand Livestock Growth and Development
1. Learn the stages of cells of prenatal livestock and birth in livestock
 2. Learn the embryonic development of a poultry egg
 3. Learn the basic anatomy and physiology of livestock, the skeletal system, muscular system, the circulatory system and the endocrine system
 4. Understand what a growth curve is and how to apply it
 5. Understand carcass composition
 6. Learn the age and teeth relationship
 7. Learn the measurements of growth
18. Understand Lactation
1. Learn the mammary gland structure and gland development and function

2. Learn the factors affecting milk production
 3. Learn Milk composition
 4. Learn what colostrum is and how it is used by the neonate
19. Learn how livestock adapt to the environment
1. Learn about the relationship between animals and the environment
 2. Learn how animals manage heat and cold
20. Animal Health
1. Learn how the animals immune system works and the factors involved in keeping the animals healthy
 2. Learn how biologicals and pharmaceuticals differ
 3. Learn how stress affects the animals
 4. Learn how to detect unhealthy animals
 5. Learn the major diseases in farm animals
 6. Learn what quality assurance programs are and how they are used
21. Animal behavior
1. Understand how learning animal behavior can help
 2. Learn the types livestock behavior and their characteristics
22. Learn the current issues in Agriculture
1. Learn about feeding our population and the future and sustainability
 2. Learn about valid comparisons and assessing risk
 3. Learn about environmental management issues
 4. Learn about land use and how it can best be used
 5. Learn about animal well being
 6. Learn about public health and the effects the livestock industry has on public health
 7. Learn about organic and other production technologies
23. Learn the beef cattle breeds
1. Learn the different breeds of beef cattle and their differences
24. Learn the basics of feeding and managing beef cattle

25. Learn the dairy cattle breed and their differences
26. Learn the basics of feeding and managing dairy cattle
27. Learn the swine breeds and their differences
28. Learn the basics of feeding and managing swine
29. Learn the sheep and goat breeds and their differences
30. Learn the basics of feeding and managing sheep and goats
31. Learn the horse breed and their differences
32. Learn the basics of feeding and managing horses
33. Learn the basics of poultry breeding, feeding and management

COURSE LEARNING OBJECTIVES

The learning objectives and competencies detailed below meet or exceed the learning outcomes and competencies specified by the Kansas Core Competency Project for this course, as sanctioned by the Kansas Board of Regents.

COURSE OBJECTIVES AND COMPETENCIES

Objective 1: *Students will exhibit an ability to demonstrate and apply practices in Animal Science and Livestock Production and the implications/impacts associated.*

Competencies: Upon completion of this unit, students will:

1. Understand animal contributions to human needs.
2. Have an understanding of red meat product.
3. Have an understanding of poultry and egg products and uses.
4. Have an understanding of milk and milk products and uses.
5. Have an understanding of wool and mohair products and uses.
6. Know and understand the byproducts of meat animals.
7. Know the market classes and grade for livestock species.
8. Know how to visually evaluate market animals.

Objective 2: *Students will show proficiency in describing the concepts of reproduction in male and female livestock species. In addition, students will obtain practical knowledge of basic Livestock Nutrition and learn how to apply these concepts into a real world operation.*

Competencies: Upon completion of this unit, students will:

1. Be able to identify female and male reproduction anatomy
2. Understand reproduction in poultry
3. Understand reproduction in sheep and goats
4. Correctly describe the 21 day estrus cycle.
5. Correctly describe the functions of the reproductive hormones.
6. Describe AI, Estrous Synchronization and Embryo Transfer
7. Understand genetics and be able to complete a Punnett square
8. Describe ways to improve beef cattle through breeding
9. List the 6 nutrient classifications, their components and their differences.
10. Know the 10 essential amino acids for livestock nutrition.
11. Know and describe the nutrient requirements for body maintenance, growth, finishing, reproduction, lactation, egg laying, wool production and work.

Objective 3: *Students will be able to show proficiency in describing environmental impacts on livestock and issues in agriculture. In addition, students will be able to describe and identify major animal health issues as well as animal behavior.*

1. Describe the environmental impact of heat and cold on livestock and how to properly deal with such issues.
2. Identify major animal health issues and understand how to manage such issues.
3. Understand animal behavior and how to minimize stress during working of livestock.
4. Identify and discuss current issues in agriculture.

Objective 4: *Students will be able to identify the different breeds of domestic livestock as well as understand the fundamentals of managing each.*

Competencies: Upon completion of this unit, students will:

1. Identify the different breeds of Beef Cattle, Dairy Cattle, Swine, Sheep and Goats and horses.
2. Understand basic management of Beef Cattle, Dairy Cattle, Swine, Sheep and Goats and Horses.

ASSIGNMENT AND TEST POLICY: When you first view your class, look over class requirements, assignments, and other class content to ensure that you wish to remain in the class. If you decide to drop the class, do NOT post in Canvas at all, as that counts as attendance per college policy, and you would be charged a portion of tuition for dropping after attending/posting.

Grading

Grading will be on a total points scale with the points breakdown as follows:

Tests	4 x 100 = 400 pts
Quizzes	101x 10 = 110 pts
Weekly Discussion Board	10 x 15 = 150 pts
Final Exam	1 x 150 = <u>150 pts</u>
	810 pts

The Quizzes will come from your power points and will be open book. They will be 10 questions and you will have 15 minutes to take each one. There will be a quiz each of the 8 weeks.

The Tests will be CLOSED BOOK and will come from your power points. They will be 50 questions each and you will have 50 minutes to take each one.

The Final Exam will be CLOSED BOOK. The Final Exam will be 40 points worth of new information and 110 points cumulative. You will have 90 minutes to take the Final and you must take the final exam with a PROCTOR.

Discussion Board

The discussion board is required each week. A topic will be provided and you must make a post based on the comment. Your post will be due by Sunday at 11:59 PM central time each week. Each week the discussion board will be worth 15 points. Grading is as follows: A detailed post pertaining to the subject with at least 5 sentences will receive full credit. Less detailed posts will receive fewer points. No post at all will receive a 0.

Extra Credit

Extra credit may be given at the instructors' discretion.

ATTENDANCE POLICY:

Colby Community College views class attendance as a mandatory activity. However, if students must be absent, the students should make arrangements in advance with the instructors. Students absent as official college representatives (athletics, activities, or scholarship fulfillment) are not counted absent but **MUST** make advance arrangements with instructors to complete all course work. Punitive grades cannot and will not be assigned if the absence is excused by the college. It is always the student's responsibility to notify instructors of any absence due to illness or any other reason.

FINALS:

In accordance with Colby Community College policy, students are required to be present for their final exam and/or complete any assessment during the time stated. **If you have a conflict with this time, you must obtain written permission two weeks prior from the Vice President of Academic Affairs and the instructor to schedule a make-up exam.** Please note that vacations, previously purchased tickets or reservations, graduations, social events, misreading the final exam schedule, and oversleeping are not viable reasons for rescheduling a final.

NETIQUETTE POLICY: This is a professional educational environment, and your emails should reflect that. Consequently, you should remember to type your first and last name at the close of every email so I know who I am replying to.

When posting on the Discussion Board in your online class, you should:

- Make posts that are on topic and within the scope of the course material
- Take your posts seriously and review and edit your posts before sending
- Be as brief as possible while still making a thorough comment
- Always give proper credit when referencing or quoting another source
- Be sure to read all messages in a thread before replying
- Don't repeat someone else's post without adding something of your own to it
- Avoid short, generic replies such as, "I agree." You should include why you agree or add to the previous point
- Always be respectful of others' opinions even when they differ from your own
- When you disagree with someone, you should express your differing opinion in a respectful non-critical way
- Do not make personal or insulting remarks
- Be open-minded

METHOD OF EVALUATION:

Students will be evaluated based on their performance on tests, quizzes and the weekly discussion board.

ACADEMIC INTEGRITY POLICY:

Colby Community College defines academic integrity as learning that leads to the development of knowledge and/or skills without any form of cheating or plagiarism. This learning requires respect for Colby's institutional values of quality, service and integrity. All Colby Community College students, faculty, staff, and administrators are responsible for upholding academic integrity.

Cheating is giving, receiving, or using unauthorized help on individual and group academic exercises such as papers, quizzes, tests, and presentations through any delivery system in any learning environment. This includes impersonating another student, sharing content without authorization, fabricating data, and altering academic documents, including records, with or without the use of personal and college electronic devices.

Plagiarism is representing or turning in someone else's work without proper citation of the source. This includes unacknowledged paraphrase, quotation, or complete use of someone else's work in any form. It also includes citing work that is not used and taking credit for a group project without contributing to it.

The following procedure will be used for students who violate the policy for the Academic Integrity Policy begins with the notification of the first infraction and continues throughout the student's tenure at Colby Community College:

- **First Offense** – Student will receive a zero for the assignment and the student will be reported to the Vice President of Academic Affairs.
- **Second Offense** – The student will receive a failing grade in the class and be reported to the Vice President of Academic Affairs and removed from the class in which the offense occurred.
- **Third Offense** – The student will be reported to the Vice President of Academic Affairs and dismissed from the college.

Any questions about this policy may be referred to the Vice President of Academic Affairs.

ASSESSMENT:

Colby Community College assesses student learning at several levels: general education, program, and course. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. An example of your work, a paper, some test questions, a presentation, or other work may be selected for assessment. This process will not affect your grade, will not require you do additional work and your evaluation will be confidentially handled. Results of these activities will be used to improve teaching and learning at Colby Community College.

SYLLABUS INFORMATION DISCLAIMER

I reserve the right to change any information contained in this document, when necessary, with adequate notice given to the student. Notice shall be given in the classroom during class. No other notice is required. It is the students' responsibility to stay current with any changes, modifications, adjustments or amendments that are made to this document

Students should adhere to the attendance, cell phone, assignment, test and grading policies in the course syllabus.

TECH SUPPORT INFORMATION

Canvas Support Hotline
855-691-5024

You can access Canvas Support information by selecting the help button on the left hand menu.

Colby Community College Support
support@colbycc.edu

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

According to the Americans Disabilities Act, it is the responsibility of each student with a disability to notify the college of his/her disability and to request accommodation. If a member of the class has a documented learning disability or a physical disability and needs special accommodations, he/she should contact Student Support Services, which is located in the Student Union.

NOTICE OF NON-DISCRIMINATION

Colby Community College provides equality of opportunity to its applicants for admission, enrolled students, graduates, and employees. The College does not discriminate with respect to hiring, continuation of employment, promotion, tenure, other employment practices, application for admission or career services and placement on the basis of race, color, gender, age, disability, national origin or ancestry, sexual orientation or religion. For inquiries regarding the nondiscrimination policies, contact the Vice President of Students Affairs, Title IX and ADA Coordinator, Colby Community College, 1255 S. Range Ave., Colby, KS 67701 (785) 460-5490).

ACCREDITATION

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