Introduction to Veterinary Science  

COURSE CODE: 5613

Course Description  
In this advanced animal science course, students will explore the field of veterinary medicine. Students will study the role of a veterinarian and veterinary technician in the diagnosis and treatment of animal diseases. Topics to be discussed include: veterinary terminology, anatomy and physiology, pathology, genetics, handling and restraint, and physical examinations along with common surgical skills. Students will engage in a variety of laboratory activities and will participate in shadowing and/or other school-to-work experiences.

This course is a component of the following Agriculture, Food and Natural Resources Pathways:
- Plant and Animal Systems

Objective:  
Given the necessary equipment, supplies, and facilities, the student, upon completion of the prescribed number of instructional hours, will be able to successfully complete the following core competencies.

Credit: 1 unit

Recommended Textbook:

Introduction to Veterinary Science – Thomson / Delmar

Additional Resources:

Veterinary Science Teachers Guide, Lesson Plan Library CD – National Council for Agricultural Education
Introduction to Livestock and Companion Animals – Prentice Hall / Interstate
An Illustrated Guide to Veterinary Science – Thomson / Delmar
Veterinary Office Practices – Thomson / Delmar
Advisor’s Guide to the FFA Student Handbook
Unit A  Developing Leadership Skills in Agriculture
Lesson 1. Planning and Organizing an FFA Meeting
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Explain how to plan a meeting and develop the order of business.
2. Describe how to set up the meeting room.
3. Explain the parliamentary procedure used in an FFA meeting.

Lesson 2. Developing an Awareness for Your Community
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Describe the meaning and importance of community service.
2. List and identify community service organizations.
3. Explain how FFA members can be involved with community improvement and development.

Lesson 3. State FFA Degree
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. List the requirements for the State FFA Degree.
2. Explain how a FFA member can obtain the State FFA Degree.

Unit B  Supervised Experience in Agriculture
Lesson 1. Keeping and Using SAE Records
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Explain how SAE records are organized.
2. Identify the procedures to making entries in the SAE records.
3. Explain how to summarize and analyze the SAE records.

Lesson 2. Making Long Range Plans for Expanding SAE Programs
Student Learning Objective: Instruction in this lesson should result in students achieving the following objectives:
1. Identify the factors that should be considered in expanding an SAE program.
2. Explain how placement and ownership SAE programs may be expanded.

Unit C: ORIENTATION TO VETERINARY SCIENCE
Lesson 1—Careers in Veterinary Science
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Discuss careers related to veterinary science
2. Identify and understand job requirements in the veterinary industry

Lesson 2— Safety and Sanitation
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Read an MSDS and locate important safety information.
2. Determine the appropriate safety precautions for a given scenario.
3. Explain what OSHA is and know its purpose.
4. Describe the different methods of sanitation and know when to use them.
5. Give examples of the four types of safety hazards.

Lesson 3— Veterinary Terminology
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Analyze veterinary terms to define their meaning.
2. Recognize common Greek and Latin prefixes, suffixes, and roots.
3. List abbreviations commonly used in veterinary medicine.
Lesson 4— Animal Rights and Welfare

**Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with animal rights and welfare.
2. Compare issues concerning animal rights and welfare.
3. Identify important dates and acts of legislation associated with animal rights and welfare.
4. Identify important laws pertaining to Veterinary Practices and the owner of the animal.

Unit D: COMPARATIVE ANATOMY AND PHYSIOLOGY

Lesson 1—Basic Cell Biology

**Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:
1. Explain the molecular makeup of cells
2. Identify the basic structures of the cell and cell function
3. Differentiate between mitosis and meiosis

Lesson 2— Tissue Types and Functions

**Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with tissues.
2. Describe the properties, locations, functions, and varieties of the following tissues:
   i. Epithelial Tissues
   ii. Connective Tissues
   iii. Muscle Tissues
   iv. Nerve Tissues

Lesson 3— Musculoskeletal System

**Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with the musculoskeletal system.
2. Describe the functions of the musculoskeletal system.
3. Identify the bones of the skeleton and relate them to a live animal.
4. Detail the structure of bone.
5. Explain how a bone grows and remodels.
6. Identify ten muscles and relate them to a live animal

Lesson 4— Circulatory System

**Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with the circulatory system.
2. List the blood components and explain the function of blood.
3. Identify the basic structures of the mammalian heart.
4. Demonstrate common sites for measuring pulse and collecting blood samples.

Lesson 5— Respiratory System

**Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with the respiratory system.
2. Identify the basic components of the respiratory tract.
3. List and discuss the function and control of breathing

Lesson 6— Renal System

**Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with the renal system.
2. Identify the basic structure of the renal system.
3. Explain the functions of the renal system.
Lesson 7— The Digestive System
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with the digestive system.
2. Identify the basic structures of the digestive system.
3. Explain digestion in monogastrics.
4. Explain digestion in ruminants.

Lesson 8— The Reproductive System
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with the reproductive system.
2. Discuss male anatomy and relate associated hormone functions.
3. Discuss female anatomy and the estrous cycle.
4. List the steps in establishing pregnancy and identify the stages of parturition.

Lesson 9— The Nervous System
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with the nervous system.
2. List and discuss the components of the nervous system.
3. Identify the major structures of the brain and describe their functions.
4. Discuss the anatomy and function of the spinal cord.
5. List and describe the structures of the eye.

Lesson 10— The Endocrine System
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with the endocrine system.
2. Identify the major endocrine glands.
3. List and describe the hormones secreted by the endocrine system.

Unit E: NUTRITION
Lesson 1— Basic Nutrition
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with nutrition.
2. List and discuss the six major components of animal diets.
3. Identify the presence or absence of nutrients in various animal feeds.

Unit F: DISEASES
Lesson 1— Principles of Disease
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Describe Koch’s Postulates
2. List the factors that influence health and wellness.
3. Discuss the factors that may cause disease

Lesson 2— Disease Classification
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Classify diseases and match them with the domestic species in which they occur.
2. Differentiate between signs and symptoms.

Lesson 3— Disease Prevention
Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Name the basic components of disease prevention.
2. Describe the types of vaccines available.
3. Explain how different diseases affect the body and the methods used to treat those diseases.
4. Distinguish between the different types of injection methods.
Unit G: CLINICAL, HOSPITAL, LABORATORY TECHNIQUES

Lesson 1—Clinical Exams

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. List the areas checked by the physical examination
2. List the equipment used in the physical examination
3. Discuss why the physical examination is important
4. Properly check the temperature of an animal
5. Properly check the pulse of an animal
6. Properly check the respiration of an animal
7. Properly listen to and describe the rhythms of the heart
8. Properly demonstrate how to restrain animals.

Lesson 2—Hospital Procedures

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Fill and read a syringe.
2. Apply different types of bandages to various areas of the body.
3. Calculate medication amounts.
4. Properly label medications.
5. Discuss the arguments for and against spaying and neutering.
6. Describe the process of immunity.
7. List ways in which diseases are transmitted.

Lesson 3—Laboratory Techniques

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Correctly prepare and stain a blood film.
2. Use a microscope to correctly identify the different types of blood cells.
3. Correctly perform a urinalysis.
4. Prepare an antibiotic sensitivity test and read the results.
5. Describe the path of blood through the heart.
6. Describe abnormalities commonly seen in blood films.
7. Explain why it is vital that all laboratory tests are properly performed.
8. Describe the functions of the circulatory and urinary systems.

Lesson 4—First Aid and CPR

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Define terms associated with first aid and CPR.
2. Demonstrate proper first aid techniques for a given situation.
3. Properly demonstrate the correct method for administering CPR to an animal.

Unit H: ANIMAL MANAGEMENT

Lesson 1—Animal Breeds and Behavior

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:
1. Identify common breeds of animals on sight.
2. Demonstrate various methods of behavior modification.
3. Discuss the most common types of behaviors displayed by various animal breeds.
4. Explain the concept of animal husbandry and what it entails.
Unit I  Developing Communication Skills

Lesson 1—Introduction to Communication
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Define communication and explain its purpose.
2. Identify the components of the communication process.
3. Identify the five different levels of communication.
4. Explain the barriers of successful communication.
5. Explain the relationship between communication and leadership.

Lesson 2—Organizing and Presenting a Persuasive Message
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Explain the steps in preparing a persuasive message.
2. Describe delivery techniques in a persuasive message.

Lesson 3—Using Communication Skills In Appropriate Situations
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Understand the role of communication skills in the workplace.
2. Understand how to present a problem to a supervisor.
3. Identify the techniques used in requesting information from a supervisor.
4. Explain the role of written communication in an agribusiness.

Unit J  Gaining Employment

Lesson 1—Developing Goals
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Explain the process of goal setting.
2. Describe the terms and types of goals.
3. Explain some aspects of effective goals.

Lesson 2—Finding a Job
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Describe information sources for job opportunities.
2. Develop a system to evaluate job openings.

Lesson 3—Applying for a Job
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Explain how to research a job opportunity.
2. Describe two methods of applying for a job.
3. Identify the common types of information requested on a job application form.

Lesson 4—Writing a Résumé and Letter of Application
Student Learning Objectives: Instruction in this lesson should result in students achieving the following objectives:
1. Explain the purpose of a résumé.
2. List the main items that should be included in a résumé.
3. Describe the purpose of a letter of application and its primary elements.