

# APAV 54A: COMPARATIVE VETERINARY ANATOMY & PHYSIOLOGY FOR THE VETERINARY TECHNICIAN

## Foothill College Course Outline of Record

Heading	Value
<b>Units:</b>	5
<b>Hours:</b>	48 lecture, 36 laboratory per quarter (84 total per quarter)
<b>Prerequisite:</b>	Per California Code of Regulations, this course is limited to students admitted to the Advanced Veterinary Assisting Apprenticeship Program.
<b>Advisory:</b>	Not open to students with credit in V T 54A.
<b>Degree &amp; Credit Status:</b>	Degree-Applicable Credit Course
<b>Foothill GE:</b>	Non-GE
<b>Transferable:</b>	CSU
<b>Grade Type:</b>	Letter Grade Only
<b>Repeatability:</b>	Not Repeatable

## Description

The first of two courses in comparative veterinary anatomy and physiology for veterinary technicians. Clinically relevant veterinary anatomy and physiology. Discussion of the similarities and differences among the major domestic species. The first course introduces basics of chemistry to help the student interpret the physical and chemical basis of life. Systems included in the first course are: integumentary, muscles, skeletal, and cardiovascular. Emphasis is placed on the normal structure and function of the major organ systems as the foundation for understanding normal physiology and the pathophysiology of disease.

## Course Objectives

The student will be able to:

- Recognize, compare, and contrast the chemical basis of life, and how these elements combine to form the biochemical molecules that make up the various cells and tissues that comprise organs and body systems.
- Apply the scientific method.
- Describe the functions of various cells and tissues.
- Describe the structure and function of the integumentary system in various species.
- Describe the structure and function of the skeletal system in various species.
- Describe the structure and function of the muscular system in various species.
- Describe the structure and function of the cardiovascular system in various species.

## Course Content

- Chemical basis of life
  - Periodic table of the elements
  - Atoms

- Protons
- Electrons
- Neutrons
- Isotopes
- Molecules
  - Nomenclature
  - Types of bonding
  - Biological molecules
  - Macromolecules
    - Sugars
    - Fats
    - Proteins
      - Structural proteins
      - Enzymes
      - Nucleic acids
    - Salts
    - Acids and bases
      - Buffer systems
    - Energy
  - Scientific Method
    - Ask a question
    - Form hypothesis
    - Create an experiment or follow a protocol
      - Variables
      - Make observations
      - Draw conclusions
      - Write the research
  - Cells and tissues
    - Cell structure
    - Life cycle of the cell
    - Cell physiology
      - Control of cell division
      - Protein synthesis
      - Cell differentiation
      - Tissues
        - Epithelial
        - Connective
        - Muscle
        - Nervous
        - Tissue healing and repair
    - Integumentary system
      - Terminology and structure
      - Functions
      - Related structures
      - Applications in clinical setting
        - Physical examination
        - Nursing care
        - Clinical pathology
        - Comparative anatomy and physiology
    - Skeletal system
      - Terminology and structure
      - Functions
        - Axial
        - Appendicular
        - Visceral
        - Joints
      - Applications in clinical setting
        - Physical examination
        - Nursing care
        - Clinical pathology
        - Comparative anatomy and physiology
        - Radiology

**F. Muscles**

1. Terminology and structure
2. Functions
3. Applications in clinical setting
  - a. Physical examination
  - b. Nursing care
  - c. Clinical pathology
  - d. Comparative anatomy and physiology
- G. Cardiovascular system
  1. Terminology and structure
  2. Functions
    - a. Cardiac conduction system
    - b. Cardiac output
    - c. Blood vessels
    - d. Fetal circulation
  3. Applications in clinical setting
    - a. Physical examination
      - 1) Perfusion
      - 2) Arteries vs. veins
    - b. Nursing care
    - c. Clinical pathology
    - d. Comparative anatomy and physiology
    - e. Radiology

**Lab Content**

- A. Laboratory topics
  1. Anatomical terminology of systems covered
  2. Applied chemistry: homeostasis
  3. Cell and tissue identification
  4. Bone taxonomy; survey of axial bones, appendicular bones and markings
  5. Muscle taxonomy; survey of major muscles, origins, insertions and actions
  6. Arthrology; survey of joint classification and actions
  7. Cardiovascular system; flow of blood, perfusion, cardiac cycle, clinical applications
- B. Laboratory skills
  1. Identification of major cell and tissue types on prepared histology slides of systems covered
  2. Use of laboratory materials such as general laboratory equipment, models and microscopes
  3. Ability to follow a protocol, make experimental observations and draw conclusions for experiments involving topics such as homeostasis of cells
  4. Define and use all directional terms
  5. Identification of three different types of muscles and their characteristics

**Special Facilities and/or Equipment**

Lecture and laboratory facility with high-quality overhead projector, instructor computer with internet access, microscope, visualizer, and DVD. Student computers, bench space, anatomy and physiology models, microscopes, prepared microscope slides, preserved specimens, images and video captured from Anatomage model on Foothill campus.

**Method(s) of Evaluation**

- Methods may include but are not limited to the following:
- A. Two written midterm exams
  - B. Written final exam
  - C. Laboratory evaluations: quizzes and practical exams

- D. Additional in-class or in-laboratory evaluations

**Method(s) of Instruction**

During periods of instruction the student will be in:

1. Lecture
2. Discussion
3. Laboratory demonstration using models, slides, Anatomage model or other lab materials
4. Cooperative learning laboratory exercises

**Representative Text(s) and Other Materials**

Colville, Thomas, and Joanna M. Bassert. *Clinical Anatomy and Physiology for Veterinary Technicians*. 3rd ed. MO: Mosby Elsevier Publishers, 2016.

Colville, Thomas, and Joanna M. Bassert. *Clinical Anatomy and Physiology Laboratory Manual for Veterinary Technicians*. MO: Mosby Elsevier Publishers, 2016.

**Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments**

Assignments may include:

- A. Reading assignments
  1. Weekly reading assignments in the lecture text and other instructional materials, such as lecture notes, online readings, study guides of approximately 30-60 pages/week
  2. Weekly reading assignments in the lab manual and corresponding instructional materials
- B. Online content and writing assignments
  1. Viewing of DVDs or online movies with written summaries
  2. Self quizzes

**Discipline(s)**

Registered Veterinary Technician