

# V T 84: ANESTHESIOLOGY FOR TECHNICIANS

## Foothill College Course Outline of Record

Heading	Value
<b>Effective Term:</b>	Summer 2023
<b>Units:</b>	4
<b>Hours:</b>	4 lecture per week (48 total per quarter)
<b>Prerequisite:</b>	V T 83; students may also satisfy the prerequisite with at least three years of experience in a veterinary clinic or laboratory animal setting, and/or a RVT or LAT or higher.
<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 (Request for Pass/No Pass)
<b>Repeatability:</b>	Not Repeatable

## Student Learning Outcomes

- Describe the steps involved in a pre-anesthetic assessment of a veterinary patient and correctly identify the risk category of that patient.
- Evaluate a case study of a dog or cat during an anesthetic procedure.

## Description

Principles and practice of veterinary anesthesia for the veterinary technician. Anatomy and physiology of the respiratory, cardiovascular, and nervous systems relevant to anesthesia. Pharmacology, indications, contraindications, and adverse effects of common pre-anesthetic and anesthetic agents. The veterinary technician's role in patient assessment, preparation, induction, monitoring, maintenance, and recovery of anesthesia. Sedation, analgesia, general anesthesia, and local anesthesia techniques are discussed. Intended for students in the Veterinary Technology Program; enrollment is limited to students accepted in the program, or by special permission of the instructor.

## Course Objectives

The student will be able to:

- Define terms in veterinary anesthesia
- Describe the role of the veterinary technician in the anesthetic event
- Develop a comprehensive anesthetic plan, from intake through recovery
- Explain best practices in anesthetic monitoring
- Develop nursing care plans for various ASA level patients
- Identify and explain the function of each of the components of the veterinary anesthesia machine
- Explain how to recognize and respond to common anesthetic problems and emergencies
- Explain how anesthesia affects the nervous system
- Explain how anesthesia affects the cardiovascular system

- Explain how anesthesia affects the respiratory system
- Discuss the indications for manual and mechanical ventilation techniques
  - Describe common veterinary procedures
- Explain the common protocols and procedures used in large animals
- Explain the principles of local anesthesia and list the common protocols and procedures
- Explain the principles of rabbit and rodent anesthesia and list the common protocols and procedures

## Course Content

- Orientation to course
  - History of veterinary anesthesia
  - Definitions
    - Analgesia
    - Sedation and hypnosis
    - Anesthesia
    - Local anesthesia
    - General anesthesia
  - Indications for sedation and types of anesthesia in veterinary medicine
- Role of the veterinary technician in anesthesia
  - Member of the veterinary team
  - Legal requirements
  - Responsibility to patient, client, practice
- Developing an anesthetic plan
  - Pre-anesthetic patient evaluation
    - History, physical exam, minimum data base, ancillary tests
    - Assignment of anesthetic risk/patient status
    - Formulation of anesthetic plan
  - Pre-anesthetic drugs
    - Anticholinergics
    - Tranquilizers
    - Narcotics
    - Alpha-2 agonists
    - Dissociatives
  - Induction agents
    - Propofol
    - Alfaxalone
    - Benzodiazepines
    - Dissociatives
  - Gas anesthesia
    - Intubation
    - MAC and partition coefficients
    - Isoflurane
    - Sevoflurane
    - Nitrous oxide
  - Recovery
    - Extubation timing and procedure
    - Monitoring during recovery
- Monitoring anesthesia
  - Stages and planes
  - Documentation
  - Interpretation of physical signs

- iv. Interpretation of instrument derived data
  - 1. Use of: esophageal stethoscope, blood pressure monitor, capnometer, electrocardiogram, pulse oximeter
- e. Develop a nursing care plan
  - i. Patient evaluation
    - 1. Vital signs
    - 2. Pain assessment
    - 3. Nutritional needs
    - 4. Fluid needs
    - 5. Positioning
    - 6. Anesthesia for sick patients, special considerations
- f. Components, function, and use of the anesthetic machine
  - i. Compressed gases
    - 1. Types
    - 2. Safety considerations
  - ii. Anesthetic vaporizers
  - iii. Breathing circuits
  - iv. Scavenging systems
  - v. Health hazards in occupational exposure
  - vi. Care and maintenance
  - vii. Waste anesthetic gas
- g. Common anesthetic problems and emergencies
  - i. Prevention
  - ii. Recognition
  - iii. Nursing interventions
  - iv. Assembling an emergency "crash kit"
    - 1. Equipment
    - 2. Supplies
    - 3. Drugs
  - v. Cardiopulmonary resuscitation procedures (recover initiative)
- h. Anesthesia and the nervous system
  - i. Anatomy review
  - ii. Physiology review
  - iii. Effects of anesthesia on the nervous system
- i. Anesthesia and the cardiovascular system
  - i. Anatomy review
  - ii. Physiology review
  - iii. Effects of anesthesia on the cardiovascular system
- j. Anesthesia and the respiratory system
  - i. Anatomy review
  - ii. Physiology review
  - iii. Effects of anesthesia on the respiratory system
- k. Manual and mechanical ventilation
  - i. Indications
  - ii. Manual methods of ventilation
  - iii. Mechanical ventilation
    - 1. Ventilator types
- l. Common procedures in veterinary anesthesia
  - i. Ovariohysterectomy—dog, cat
  - ii. Cesarean section—all common species
  - iii. Orthopedic procedures
  - iv. Orchiectomy—all common species
  - v. Tail docking
  - vi. Onychectomy—dog, cat
  - vii. Laparotomies—all common species
  - viii. Dystocias in common species
  - ix. Dehorning—cattle, goats
    - x. Prolapsed organs—common types, species, and incidence
- m. Equine, ruminant, and swine anesthesia
  - i. Behavioral, anatomic, and physiologic considerations
  - ii. Assessment of anesthetic depth
  - iii. Monitoring
  - iv. Standing chemical restraint
  - v. General anesthesia
  - vi. Common protocols
    - 1. Equine
    - 2. Bovine
    - 3. Ovine
    - 4. Caprine
    - 5. Porcine
  - vii. Common procedures
    - 1. Equine
    - 2. Bovine
    - 3. Ovine
    - 4. Caprine
    - 5. Porcine
- n. Local anesthesia
  - i. Indications in small animal and large animals
  - ii. Types and techniques
  - iii. Local anesthetic agents
- o. Anesthesia of rabbits and rodents
  - i. Rabbits
    - 1. Common protocols
    - 2. Monitoring and management
  - ii. Rodents
    - 1. Common protocols
    - 2. Monitoring and management

## Lab Content

Not applicable.

## Special Facilities and/or Equipment

1. Classroom equipped with multimedia presentation and projection equipment.
2. Anesthetic machines.
3. SIMPL app and/or other anesthesia monitoring applications that may be used during lecture.

## Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

- Written examinations
- Guided reading assignments
- Case studies
- Written report (clinical case or research) requiring library and internet research

## Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lecture  
Discussion  
Demonstrations  
Cooperative learning exercises  
Oral presentations  
Independent study

## Representative Text(s) and Other Materials

Thomas, J.A., and P. Lerch. Anesthesia and Analgesia for Veterinary Technicians. 2017.

This is a seminal text in the field. It has not yet been updated, but it does include best practices and is considered current.

The following websites have required reading:

2020 AAHA Anesthesia and Monitoring Guidelines for Dogs and Cats: <https://www.aaha.org/aaha-guidelines/2020-aaha-anesthesia-and-monitoring-guidelines-for-dogs-and-cats/anesthesia-and-monitoring-home/>

2022 Pain Management Guidelines for Dogs and Cats: <https://www.aaha.org/aaha-guidelines/2022-aaha-pain-management-guidelines-for-dogs-and-cats/home/>

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

- a. Weekly reading assignments from text and other sources ranging from 30-60 pages per week
- b. Written short answer essay questions
- c. Written case studies

## Discipline(s)

Registered Veterinary Technician