

**Bergen Community College
The School of Health Professions
Veterinary Technology Program
Syllabus-VET-219**

Course Title: Surgical Assistance and Anesthesia

Course Number: VET-219

Program Affiliation: Veterinary Technology

Credits: 3

Classroom Hours: 2

Laboratory Hours: 3

Prerequisites: Admission into the professional segment of the Veterinary Technology Program

Course Description:

Surgical nursing will include in-depth discussion and hands on experience with hygiene of the surgical suite and surgical prep room, asepsis, surgical instruments, and sterilization. The student will learn the basics of animal anesthesia as used in surgical procedures. It includes drugs and equipment for anesthetic administration, recovery, and emergencies, along with management of these preparations. We will also provide the student with in-depth coverage of preoperative and postoperative patient care.

Course Goals:

- To introduce the student to the concepts of asepsis, sanitation, sterilization and disinfection
- To enable the student to properly prepare surgical equipment and supplies, including instruments, suture materials, gowns, masks, gloves and drapes
- To instruct the student in the appropriate methods of sterilization of surgical equipment and supplies, and the operation and maintenance of autoclaves
- To familiarize the student with the various surgical instruments and their usage
- To enable the student to identify common suture materials, types and sizes
- To teach the student to position patients for common surgical procedures and prepare surgical sites using aseptic techniques
- To instruct the student in proper operating room sanitation and care
- To teach the student to assist with routine surgical and/or obstetrical procedures

- To familiarize the student with the importance of keeping thorough operative and anesthetic records
- To enable the student to assist with anesthesia under supervision through calculation and administration of preoperative medications, induction and maintenance of general anesthesia and monitoring of the patient during anesthesia
- To teach the student to recognize anesthetic emergencies and take the proper actions to alleviate them
- To familiarize the student with the operation, care and maintenance of the anesthetic machine
- To instruct the student in the care and management of the post-operative patient
- To teach the student to perform post-surgical clean-up of the surgical suite
- To introduce the student to the proper procedure for suture removal

Performance Objectives:

Upon completion of this course, the student will be able to:

I. Surgical Nursing Objectives:

- Discuss the meaning of aseptic technique, state the means by which infectious particles are transmitted and the means of controlling transmission
- Describe the possible consequences of disregarding aseptic technique in the performance of surgical duties
- List the advantages and disadvantages of the various methods of controlling microbes in the surgical area
- Select the most advantageous method of microbe control for application in a given circumstance
- Describe the cumulative effect of consistent and repetitive application of control procedures in maintaining acceptably low levels of microbes
- Apply a knowledge of aseptic procedures to the routine maintenance of the surgical area
- Describe the procedure for donning the sterile surgical gown and gloves
- List the steps involved in the routine surgical skin preparation of a patient
- Demonstrate the procedure for wrapping surgical packs
- Describe the sequence of steps in the performance of the surgical scrub
- Demonstrate the ability to place a patient in the basic surgical positions
- Identify the sterile boundaries for scrubbed vs. unscrubbed personnel in the operating room
- Apply the rules of conduct for maintaining sterility before and during surgical procedures
- Identify the duties for each area of responsibility for surgical procedures
- Discuss how the design and maintenance of a surgical area ensures patient safety by preventing cross-contamination
- Name the basic equipment used in each room of the surgical area
- List the guidelines for conduct to be observed in the operating room to prevent fire and explosion
- Identify selected surgical instruments

- Describe the function of selected surgical instruments, equipment, and supplies
- Recognize several types and sizes of absorbable and non-absorbable sutures
- Select instruments for inclusion in basic instrument packs
- Apply the knowledge of the care and handling of surgical instruments and supplies to the performance of the duties of a surgical technician
- List the seven general functions to be performed by the technician before any surgical procedure
- List the indications for neutering dogs and cats
- Demonstrate knowledge of routine surgical procedures
- List the ten general signs to observe in the animal recovering from surgery
- Describe the difference between first intention wound healing and second intention wound healing
- Restate the clinical signs, classifications, and treatment of shock
- Demonstrate an understanding of the proper restraint of trauma patients
- Explain the primary objectives and sequence of events in cardiopulmonary resuscitation
- Recognize and describe the various causes and presenting signs of respiratory emergencies
- Demonstrate the application of knowledge of the four spinal functions to evaluate the spinal trauma patient
- Identify the causes and treatment of anesthetic emergencies from among the major categories
- Define the principles of evaluating ophthalmic emergencies
- Describe the postoperative nursing care of gastrointestinal patients
- List the major urinary emergencies
- Tell the signs of impending dystocia

II. Anesthetic Nursing Objectives

- Define the term *pre-anesthetic period*
- Understand the reasons for patient evaluation
- Understand the need for obtaining a proper history, know how to take a complete history, and know what pitfalls may be encountered when taking a history
- List the information that makes up the minimum data base for a patient
- Understand the rationale for obtaining the owner's consent for anesthesia
- State the parameters of a proper physical examination
- Understand the importance of species, breed, weight, and obesity as they relate to the use and choice of anesthetic drugs
- State the five physical classifications of patients as specified by the American Society of Anesthesiologists
- Describe the various aspects of pre-anesthetic preparation including choice of protocol, fasting, rationale for IV catheterization, and types of IV solutions that can be used and why they might be chosen
- State which pre-anesthetic agents are commonly used, the rationale for their use, their mode of action and effects on the body, and the associated adverse side effects

- Define or explain the terms *general anesthesia, tachypnea, induction, hyperventilation, apneustic breathing, hypostatic congestion, reticular activating center, hypertension, hypotension, and central venous pressure*
- Identify or describe the components of general anesthesia, including the various stages and planes
- Understand the techniques, advantages, and disadvantages of IV, IM, and inhalation anesthesia
- Describe the technique of endotracheal intubation and understand the advantages and disadvantages of this procedure
- State the rationale for monitoring an anesthetized patient and know the various parameters that should be monitored
- Understand the concept of safety as it relates to general anesthetics
- Describe the advantages and disadvantages associated with the use of inhalation anesthetic agents
- List the barbiturate and dissociative anesthetic drugs that may be used as general anesthetics and be familiar with the following information regarding each agent: mode of action, effect on body systems, factors that may promote their uptake by the brain, route of elimination from the body, and adverse side effects
- List the various inhalation anesthetic agents that are available for use and the advantages and disadvantages of each agent
- Describe the pharmacological properties of halothane, isoflurane, methoxyflurane, and nitrous oxide
- Explain the concepts of uptake, distribution, and elimination of the commonly used inhalation anesthetic agents
- Define and explain the significance of minimum alveolar concentration, vapor pressure, solubility (partition) coefficient, and rubber solubility
- Identify equipment that is used for the induction and maintenance of general anesthesia in the dog or cat
- Differentiate among the various types of endotracheal tubes and list the advantages and disadvantages of each
- List the advantages and disadvantages of cuffed versus non-cuffed tubes
- Describe the functions and components of an anesthetic machine
- Trace the flow of a carrier gas, such as oxygen, through an anesthetic machine and patient breathing circuit
- State the difference between a rebreathing and a non-rebreathing system with regard to equipment, air flow pattern, and indications for use
- Understand the advantages and disadvantages of both rebreathing and nonrebreathing systems
- Differentiate between a precision and non-precision vaporizer, and recognize the advantages and disadvantages of each
- Describe both the short-term and long-term effects of waste anesthetic gas on the operating room personnel
- Recognize ways in which the release of waste anesthetic gases may be minimized
- Describe proper procedures for handling and transporting compressed gas cylinders

- Describe ways in which errors in anesthetic administration may be prevented or corrected
- Explain the role that the veterinary technician can take in emergency care
- Give reasons why anesthetic emergencies occur, including problems arising from human error, equipment failure, adverse effects of anesthetic agents, and variations in patient status and breed
- Explain the appropriate action to be taken in response to common emergencies, including cardiac arrest and respiratory arrest
- Define or explain the terms local analgesia, line block, nerve block, epidural anesthesia, controlled ventilation, assisted ventilation, manual ventilation, and mechanical ventilation
- Understand the advantages and disadvantages associated with the use of local analgesic agents
- Understand the various ways in which analgesic agents may be administered, including topical, infiltration, regional, epidural, and intravenous routes
- Describe the technique for performing an epidural block, and list the clinical situations in which this block could be used
- Understand the risks involved and the adverse side effects that may be manifested with the use of local analgesic agents
- Explain the difference between assisted and controlled ventilation
- Understand the techniques of assisted and controlled ventilation and their application to canine and feline anesthesia

Course Materials:

Primary:

Thomas, J: *Anesthesia and Analgesia for Veterinary Technicians 4th ed*, St. Louis, 2011, Mosby-Year Book, Inc.

McCurnin, DK: *Clinical Textbook for Veterinary Technicians*, 4th ed, Philadelphia, 1998, W.B. Saunders

Additional handouts

Teaching Methodologies:

The teaching methodologies employed in this course include lecture, class discussion, practical “hands-on” laboratories, log maintenance, clinical site visits, audiovisual presentations, the review of individual case studies, and student participation through brainstorming and critical thinking. Laboratory sessions will be held at County College of Morris and at sites off-campus, including privately owned veterinary hospitals and referral institutions.

Lecture Grading Criteria

There will be announced and unannounced quizzes, which will cover material from lecture presentations, discussion or outside assignments. Unit tests may be given at times mutually agreed upon by the students and the instructor, and a final exam will be scheduled. Students are expected to take exams as scheduled. Students who miss exams must present a bonafided excuse, in writing, and arrange to make up the exam within one week of the scheduled exam time. Failure to do so will result in a grade of 0 for that exam. Grades from these exams and the final will be averaged for 60% of the final course grade.

Grade Distribution:

Quizzes	25%
Unit Exams	25%
Assignments	25%
Cumulative Final	25%

Laboratory Grading Criteria

The laboratory grade will be based on attendance and participation in the laboratory sessions. Each student will be required to wear a clean, pressed, white lab coat or smock or surgical scrubs during laboratory sessions. A mandatory requirement for completing this course involves submission of a logbook that documents performance or exposure to the essential and recommended task list. Laboratory sessions will have numerous written, oral, and practical quizzes. The laboratory portion of the course will count for 50% of the final course grade.

Lecture Attendance Policy:

Attendance and classroom participation are of utmost importance. Students are expected to be present and on time for all classes. If you must miss a class, I expect that you will either let me know in advance or contact me immediately after the absence. Whether you are late or absent for a particular class, you are responsible for all material covered in your absence. This material should be obtained from a classmate. No more than 3 lectures can be missed. This will result in an automatic INC for the class.

Laboratory Attendance Policy

Attendance is mandatory. Missing more than (2) lab sessions will result in an automatic failure. Labs cannot be made up.

Instructor Absence:

A substitute professor may teach the class, if available. If I need to cancel class, I will make every attempt to notify you in advance. In cases of emergency, please wait 15 minutes at the classroom door before leaving.

Student Accommodations:

Students who require accommodations by the Americans with Disabilities Act (ADA) can request support services from the Office of Specialized Services of Bergen Community College, Room S – 153, Pitkin Education Center, 201- 612 – 5270 or <http://www.bergen.edu/pages/676.asp>.

Topical Outline:

Sanitation, sterilization, and disinfection

Aseptic technique

Surgical instrument identification, care and use

Preanesthetic patient evaluation

Pharmacology of anesthetic agents

Anesthetic waste gases and personal safety

Anesthetic equipment and its maintenance

Surgical preparation of equipment and patient

Intraoperative patient monitoring and ventilatory support

Surgical assistance and suture materials

General principles of surgical nursing

Wound healing and basic wound management principles

Common surgical procedures

Orthopedic surgery

Anesthetic emergencies

Postoperative patient monitoring and analgesia

Postoperative cleanup of the surgical suite

Client education and postoperative care