STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

COURSE OUTLINE

VSCT 206 – ANESTHETIC PRINCIPLES

Prepared By: Mary O’Horo Loomis, DVM

SCHOOL OF SCIENCE, HEALTH AND CRIMINAL JUSTICE
VETERINARY SCIENCE TECHNOLOGY
MAY 2015
A. **TITLE:** Anesthetic Principles  
B. **COURSE NUMBER:** VSCT 206  
C. **CREDIT HOURS:** 3  
D. **WRITING INTENSIVE COURSE:** No  
E. **COURSE LENGTH:** 15 weeks  
F. **SEMESTER(S) OFFERED:** fall  
G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:** 2 lecture hours and 2 hrs of laboratory per week  
H. **CATALOG DESCRIPTION:**  
This course is an introduction to anesthetic principles as they relate to animal medical and surgical care. The student will be presented with information on basic preanesthetic agents, anesthetic agents, and anesthetic monitoring devices. The student will have hands-on experience with preanesthetic, anesthetic, and postanesthetic evaluation/monitoring techniques and devices. Students will be presented with the potential human and animal hazards associated with anesthetic drugs. CPR and the recognition and treatment of emergency situations will be addressed. Pain control and analgesics commonly used in multi-modal pain treatment will be covered. In the laboratory, the student will medicate patients with many of the commonly used anesthetic and preanesthetic drugs, compare/contrast their effects, and record the results in their laboratory notebooks.  
I. **PRE-REQUISITES/CO-REQUISITES:**  
   a. Pre-requisite(s): VSCT 114, VSCT 115  
   b. Co-requisite(s): none  
J. **GOALS (STUDENT LEARNING OUTCOMES):**  
By the end of this course, the student will be able to:  

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<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<tr>
<td>Accurately calculate anesthetic drug dosages for animals when given the</td>
<td>3. Prof. Competence</td>
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<td>appropriate information.</td>
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<td>Discuss the various preanesthetic drugs and the pros and cons of each.</td>
<td>2. Crit. Thinking</td>
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<td>List the commonly used veterinary anesthetic drugs (injectable &amp; inhalant) and</td>
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<td>discuss their characteristics and their uses.</td>
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<td>Describe the stages and planes of anesthesia.</td>
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<td>Trace a molecule of gas through an anesthetic machine.</td>
<td>2. Crit. Thinking</td>
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<td>3. Prof. Competence</td>
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<td>Discuss alternative induction modalities such as mask/chamber induction.</td>
<td>3. Prof. Competence</td>
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<td>Discuss anesthetic hazards and emergency protocols.</td>
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<td>3. Prof. Competence</td>
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<td>Discuss &amp; perform the proper method of endotracheal intubation.</td>
<td>3. Prof. Competence</td>
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Describe how to perform CPR.

Operate and discuss the use of monitoring devices such as the pulse oximeter and the EKG machine.

Recognize signs of pain and common drugs used in pain management.

Discuss various drugs used or avoided with exotic animals.

3. Prof. Competence
3. Prof. Competence
2. Crit. Thinking
2. Crit. Thinking
3. Prof. Competence

K. TEXTS:
- Lecture and laboratory note packet
- Program Manual / Essential Tasks booklet (same as last year)

L. REFERENCES:
NA

M. EQUIPMENT: furnished in lab

N. GRADING METHOD: A-F

O. MEASUREMENT CRITERIA/METHODS:
- Exams
- Quizzes
- Lab Quizzes & Practicum

P. DETAILED COURSE OUTLINE:

1. Drug Math:
   Students will:
   - review the stoichiometric and the ratio methods of calculating drug dosages.
   - calculate dosages for sample problems.

2. Anesthesia Defined:
   Students will:
   - define local and general anesthesia.
   - list factors influencing the type of anesthesia used.
   - list reasons to use tranquilizers/anesthesia.
   - discuss the inherent risks associated with general anesthesia.
   - list the stages of an anesthetic protocol.

3. Patient Evaluation:
   Students will:
   - discuss reasons for preanesthesia evaluations.
   - list minimum information needed in a complete history.
   - list information to be obtained during a physical exam.
   - differentiate between risk categories (I-V).
   - define Basal Metabolic Rate and what factors influence it.

4. Preanesthetic Drugs:
   Students will:
-define tranquilizers and sedatives.
-discuss why preanesthetic drugs are beneficial for balanced anesthesia.
-discuss/compare Phenothiazine drugs such as Acepromazine and Thiazine drugs such as Xylazine and Dormitor.
-discuss Atropine and Glycopyrrolate and their uses as anti-cholinergic drugs.
-list the uses of the Benzodiazepines and Opioid drugs.
-define Neuroleptanalgesia and when it can be used.
-list the various reversing agents for the preanesthetic drugs.

5. **Anesthetic Drugs:**
   Students will:
   - define Induction Agent
   - list pros and cons of using drugs in the Cyclohexamine family (Ketamine and Tiletamine).
   - list the pros and cons of Propofol.
   - compare the lipid solubilities of the different types of Barbiturate drugs.

6. **Endotracheal Intubation:**
   Students will:
   - discuss the pros and cons of tube placement.
   - trace the steps for passing an endotracheal tube.
   - choose endotracheal tubes from the chart according to the weight of the patient.
   - examine the larygoscope and use it to visualize the glottis.
   - list different ways to effectively pass an endotracheal tube.
   - list ways to determine if the endotracheal tube is properly placed.
   - discuss indications for extubation.

7. **Stages/Depth of Anesthesia:**
   Students will:
   - list the stages and planes of anesthesia and what occurs at each level.
   - describe how to tell when certain reflexes are lost during anesthesia.
   - list ways to estimate blood pressure.
   - list ways to obtain the heart rate while under anesthesia.
   - define hyper/hypo ventilation.
   - define malignant hyperthermia, the causes and treatment.

8. **Gas Anesthesia:**
   Students will:
   - define gas anesthesia.
   - list advantages/disadvantages over injectables.
   - discuss what the variables are that measure potency of a gas.
   - list the pros and cons of the various anesthetic gases (isoflurane, halothane, methoxyflurane, ether, and nitrous oxide).
   - discuss how these drugs are eliminated from the body.

9. **Gas Machine/Vaporizers:**
   Students will:
   - compare/contrast precision and non-precision vaporizers.
-compare/contrast rebreathing and non-rebreathing systems.
-discuss 2 types of non-rebreathing systems (Ayres T piece and Bain).
-identify the parts and functions of a gas anesthesia machine.
-trace a molecule of gas through the parts of the machine.
-determine the liters of oxygen in a tank if you know the PSI in the oxygen tank.
-discuss the benefits of bagging an animal.

10. **Mask Induction/ Chamber Induction:**
    Students will:
    -discuss reasons for using these devices.
    -discuss the protocols for these devices.
    -describe the mechanics of these devices.

11. **Anesthetic Dangers, Emergencies and CPR:**
    Students will:
    -list waste gas hazards.
    -define tidal volume, dead space, elasticity, and compliance.
    -list indications for CPR.
    -list ABCDE=s of resuscitation.
    -describe the CPR procedure.
    -list emergency drugs and their uses.
    -discuss shock, its symptoms, and treatment.

12. **Monitoring Devices:**
    Students will:
    -compare/contrast the use of objective vs. subjective techniques to measure physiologic parameters.
    -list what the Pulse Oximeter measures.
    -describe the placement of the Pulse Oximeter.
    -list the things that can interfere with its proper functioning.
    -discuss the use of the EKG in anesthesia.
    -describe how the Doppler Unit can help to measure blood pressure.

13. **Pain Management:**
    Students will:
    -list the signs of pain exhibited by animals.
    -list the adverse sequella to pain.
    -describe the benefits of pain relief.
    -name some of the common veterinary drugs used for pain relief.

14. **Exotics and Anesthesia:**
    Students will:
    -list drugs commonly used in birds/reptiles/rodents.
    -list drugs contraindicated in certain exotic species.
    -discuss the benefits of gas anesthesia in exotics.

**Q. LABORATORY OUTLINE:**

1. Intro and Risk Assessment
2. Patient Assessment & Basic Emergency Procedures
3. Preanesthetics.
4. Tranquilizers
5. Injectable Anesthesia and Intubation.
6. Gas Anesthetic Machine
7. Gas Anesthesia
8. Anesthetic Machine Practical
9. IV Anesthesia and Machine
10. Monitoring Devices
11. IM Telazole & Cat Intubation
12. Mask/ Cage Induction & Non-rebreathing system
13. Pain Control and Advanced CPR
14. Lab Practical