PURDUE VETERINARY MEDICINE

PURDUE UNIVERSITY COLLEGE OF VETERINARY MEDICINE

Veterinary Nursing Distance Learning
Summer 2025 version

EQUINE ANESTHESIA MENTORSHIP

VM 21100

CRITERIA HANDBOOK AND LOGBOOK

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NOTE THE FOLLOWING DUE DATES FOR THE TASKS ABOVE:

Fall or Spring semester	***11:59p.m. Thursday of week 6 – Tasks 1-4***
	11:59p.m. Thursday of week 10 – Tasks 5-7
Summer session	***11:59p.m. Thursday of week 4 – Tasks 1-4***
	11:59p.m. Thursday of week 8 – Tasks 5-7

Incomplete grades will not be assigned for mentorships at the end of the semester.

Grade penalties will be assessed for tasks submitted after the due date.

Resubmission due dates will be set by the instructor as required.

STUDENT INFORMATION

GOALS OF CLINICAL MENTORSHIP

In order to achieve the goals for this Clinical Mentorship, the tasks must be performed to the level of competency as outlined by the *Criteria* for each task.

The student is responsible for providing documentation for each task as defined by the *Materials Submitted for Evaluation and Verification* section on each task.

Final approval of successful performance and completion of the Clinical Mentorship will be made by the Purdue University instructor in charge of the Clinical Mentorship. This approval will be based upon the documentation provided by the student.

The Purdue University instructor in charge has the option to require additional documentation if, in their judgment, the student has not performed and/or documented the task to the level set by the Criteria.

Documentation of completed tasks is essential to validating the educational process and ensuring that the performance of graduates of the Veterinary Nursing Distance Learning Program meets the standards of quality required by the Purdue University College of Veterinary Medicine faculty and the American Veterinary Medical Association accrediting bodies.

CONTACT PERSON

Questions regarding the overall Clinical Mentorship process should be directed to

Pam Phegley, BS, RVT
Clinical Mentorship Coordinator
(765) 496-6809
phegleyp@purdue.edu

Questions regarding this mentorship (tasks, due dates, etc.) should be directed to the instructor for this mentorship course.

CRITERIA HANDBOOK AND LOGBOOK

This Criteria Handbook and Logbook contains the list of tasks that must be successfully completed in order to receive credit for this Clinical Mentorship. The student is expected to have learned the basics of how, why, and when each procedure is to be done from the courses listed as pre-requisites for this Clinical Mentorship. This booklet contains the directions and forms that must be followed and completed in order to meet the standards set for successful completion of this Clinical Mentorship.

Please read each component of each task carefully before performing the task to minimize required resubmissions. The components of each task are summarized:

Goal – Describes the ultimate outcome of the task the student will perform.

Description – Lists the physical acts the student will perform, and under what conditions these acts will be completed.

Materials Submitted for Evaluation and Verification – These specific materials must be submitted to demonstrate that the student actually performed the task as stated. Each evaluation states specifically what must be shown in the submitted materials.

The Purdue University course instructor for this Clinical Mentorship has the option to request further documentation if the submitted materials do not clearly illustrate the required tasks.

Videos, photographs, radiographs, slides, written projects, the Criteria Handbook and Logbook and any other required documentation will not be returned. These items will be kept at Purdue as documentation of the student's performance for accreditation purposes.

This validation is essential to help the Purdue VNDL meet AVMA accreditation criteria. Therefore, it is essential that the student follows the evaluation and validation requirements.

COMPLETION OF THE CLINICAL MENTORSHIP

Mentorship logbooks include due dates for sets of tasks. Each set must be submitted by the deadline listed in the logbook. Late submissions will incur a grade penalty. Incomplete grades will not be assigned for mentorships at the end of each semester.

Feedback will be posted to the Brightspace assignment following review of each task. As necessary, instructors may require resubmission of some tasks. When feedback is posted, due dates for resubmissions will be given**.** ***It is crucial that students with pending feedback set their Brightspace to notify them when feedback and scores are posted, so this information is received in a timely manner.***

Final approval of successful performance and completion of the Clinical Mentorship will be made by the Purdue University instructor in charge of the Clinical Mentorship based upon the documentation provided by the student.

Upon successful completion of all tasks in the clinical mentorship course, a grade will be assigned by the course instructor based upon the documented performance of the tasks.

Task Verification forms and other written materials should be submitted in ***Assignments*** in Brightspace. Task Verification forms are due by the task due date in order for each task to be complete. You must assign the forms and any other supplemental paperwork required for the tasks, to the correct course assignment in order for the instructor to view them.

For Support Contact the PVM Instructional Design team at pvmit@purdue.edu for assistance.

CLINICAL MENTORSHIP PROJECTS

INTRODUCTION TO SPECIAL PROJECTS

Certain mentorships will have required projects to complete in addition to the required tasks. Written projects should be typed and checked for correct grammar and spelling. Photos should be embedded into the related written documents.

Before starting each project

1. Read through the project in its entirety. This will give you a description of the project and what is needed to complete it successfully.
2. Determine what materials, if any, need to be submitted for completion of the project.
3. Most projects will come with a list of questions/points that need to be addressed and included in the written document.

1. PREANESTHETIC EVALUATION OF THE PATIENT FOR ANESTHESIA PROJECT

Goal: The student will evaluate the patient prior to premedication to ensure the patient is ready for anesthesia.

The student will submit a 1-3 page paper addressing the following:

Review the Equine Physical Exam video (up until 8:45 mark) and the chapter textbook resources located in the Brightspace course

1. Based on the YouTube video, answer the following questions.
    a. What is the first parameter collected in the physical exam?
    b. How weight is determined in a horse without a scale?
    c. What are the 4 fields that need to be auscultated in the horse?
    d. What is included in the gross observation of the horse?
    e. What are the 3 areas assessed on the head/face of the horse?
    f. How are digital pulses checked?
    g. What are the normal reference ranges for the following vital parameters-
        i. Heart rate
        ii. Respiratory rate
        iii. Temperature
        iv. MM/CRT

2. What is the minimum database lab work that should be completed in an equine patient prior to anesthesia?

3. For a 1000lb patient, calculate the following (SHOW YOUR WORK!)-
    a. IV fluid rate (5ml/kg/hr)
    b. Anesthetic protocol #1 (show your work!)
        i. Acepromazine 0.03-0.05mg/kg (10mg/ml)
        ii. Xylazine 0.5-1.1mg/kg (100mg/ml)
        iii. Butorphanol 0.05-0.1mg/kg (10mg/ml)
    c. Anesthetic protocol #2 (show your work!)
        i. Dexmedetomidine 0.02mg/kg (0.5mg/ml)
        ii. Morphine 0.01mg/kg (15mg/ml)
    d. Tidal volume
    e. O2 flow rate based on a closed system

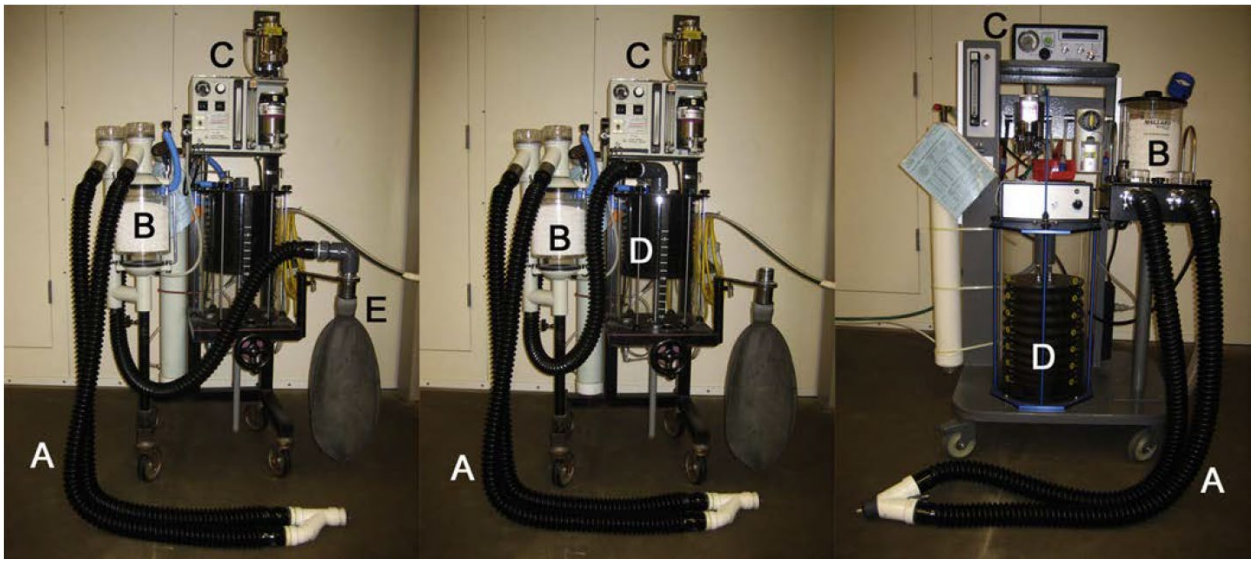
4. Explain the anatomical landmarks of administering pre-medications the IM route.

2. PRE-ANESTHETIC PREPARATION OF THE ANESTHETIC MACHINE PROJECT

Goal: To prepare an anesthetic ventilator for use on a patient receiving inhalation anesthesia.

The student will submit a 1-3 page paper addressing the following:

Label the components of the large animal anesthesia machine (A, B, C, and D).



Review the Anesthesia Ventilators 101 handout located in the Brightspace course.

1. What is the primary goal of using an anesthetic ventilator?

2. Of the 9 indications for using anesthetic ventilators, list 5.

3. Define the following terms-
    a. Double circuit unit
    b. Tidal volume
    c. Minute volume
    d. IPPV / IPPB
    e. PEEP
    f. PIP
    g. I:E ratio

4. List and describe the 4 basic controls of the anesthetic ventilator unit.

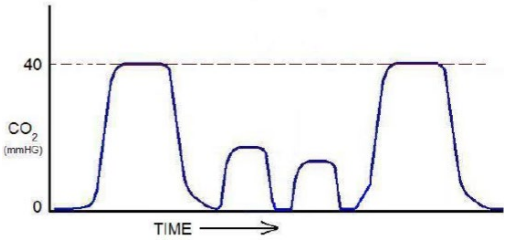
5. Where does the airway pressure sensor tube (APST) connect to?

6. Once the anesthetic ventilator is connected to the anesthesia machine, what position (open / close) is the pop-off valve in? Why?

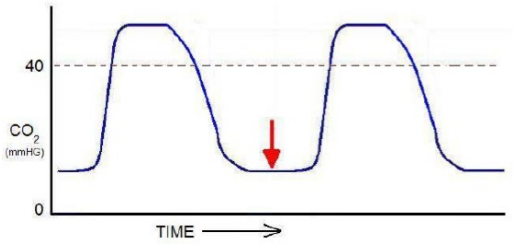
7. What is the maximum working pressure limit (MWPL)?

8. Interpret the following capnogram waveforms-

a.



b.



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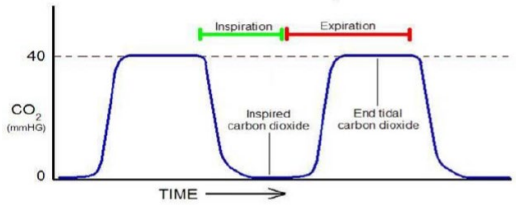
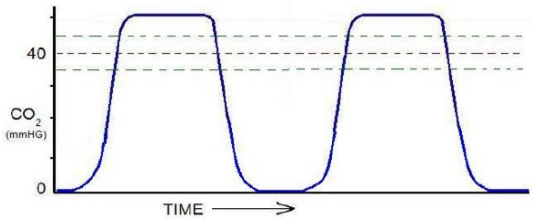


d.



9. Explain the two methods of weaning the anesthetic ventilator.

10. What are 3 potential complications of anesthetic ventilator use?

3. PREANESTHETIC AND INDUCTION AGENT PROJECT

Goal: To identify preanesthetic and induction agents commonly used in equine patients using to facilitate intubation.

The student will submit a 1-3 page paper addressing the following:

1. For each of the following anesthetic agents listed below, address the following-
    a. Can the agent be used as a preanesthetic agent, induction agent, both, or other (and specify what)?
    b. Drug class and mechanisms of action of the drug
    c. Systemic effect(s) of the drug
    d. Contraindications/situations in which to avoid use of the drug
    e. Cite references used: Title, Author, page numbers, or web address

    Acepromazine

    Xylazine

    Dexmedetomidine

    Butorphanol

    Ketamine

    Diazepam / Midazolam (choose one)

    Guaifenesin

    Dobutamine

    Naloxone

    Atropine

4. EQUINE INTUBATION

Goal: The student will observe intubation of an equine patient.

The student will submit a 1-3 page paper addressing the following:

Review the Anesthetizing the Horse (up until 1:12 mark) and Orotracheal Intubation videos, along with the chapter textbook resources located in the Brightspace course.

1. What must be done prior to general anesthesia in the equine patient? Why?

2. Summarize the induction protocol for equine patients. What are the two reasons several personnel are involved? How does induction of horses differ from small animal patients?

3. List 5 supplies that are needed for orotracheal intubation.

4. Summarize the process of equine intubation.
    a. Patient position
    b. Procedural steps

5. Once intubated, how is the equine patient transferred to the surgical suite?

6. What factors should be considered when it comes to equine patient positioning on the surgical table in lateral recumbency? These factors will help prevent what 3 major complications?

5. MAINTENANCE AND MONITORING OF GENERAL ANESTHESIA

Goal: The student is able to identify the maintenance state of general anesthesia while monitoring the patient's vital signs, reflexes and overall depth of anesthesia.

The student will submit a 1-3 page paper addressing the following:

Reference the small animal patient monitoring SOPs located in the Brightspace course.

1. Create a standard operating procedure (SOP) document based on equine patient monitoring parameters. Parameters that need to be included are-
    a. Heart rate
    b. Pulse rate
    c. Respiratory rate
    d. Temperature
    e. Electrocardiogram (ECG)
    f. Blood pressure (BP)
    g. Pulse oximetry (SpO2)
    h. Capnography (ETCO2)
    i. Arterial blood gases (ABG)
    j. How to assess/determine anesthetic depth

6. RECOVERY FROM ANESTHESIA

Goal: The student will describe the recovery process and extubation signs of an equine patient following anesthesia.

The student will submit a 1-3 page paper addressing the following:

Review the Art of Equine Anesthesia video (from 5:34-8:33) and the chapter textbook resources located in the Brightspace course.

1. According to Dr. Hubbell, what percent of time do horses spend in recumbency? What does this mean for equine anesthetic recovery?

2. Describe 3 things the veterinary technician can do to prepare for equine patient recovery.

3. If recovery will include assistance from ropes, where should the ropes be attached?

4. What should be monitored on the patient during the recovery period?

5. How can the veterinary technician prepare for extubating of the patient? What are the signs that the equine patient is close to extubation?

7. EQUINE ANESTHESIA REVIEW QUESTIONS

Review the chapter textbook resources located in the Brightspace course.

The student will answer the following questions:

1. Which of the following is true regarding use of standing chemical restraint for performing surgery on a horse?
    a. Horses must be endotracheally intubated for standing chemical restraint
    b. Risk of myopathy or neuropathy is higher with standing chemical restraint
    c. The head must be supported in a normal position to avoid nasal congestion
    d. Hypoxemia is a common complication of standing chemical restraint
2. If a horse becomes excited after it had been premedicated with xylazine IV before general anesthesia, the next step the anesthetist should take is to:
    a. Allow the horse time to calm down before proceeding
    b. Physically restrain the horse using ropes
    c. Induce the horse with acepromazine
    d. Induce the horse with ketamine
3. Appropriate positioning and padding of the horse on the surgery table are essential to prevent:
    a. Hypoxemia and hypotension
    b. Myopathies and neuropathies
    c. Hypoventilation and hypertension
    d. Regurgitation and aspiration
4. What is/are the main reason(s) for including guaifenesin in an induction protocol in horses?
    a. Muscle relaxation
    b. Analgesia
    c. Sedation
    d. All of the above
5. An inhalant induction via nasotracheal tube placement is appropriate for which of the following patients?
    a. A 2-year-old Arabian stallion undergoing arthroscopy
    b. A 25-year-old Thoroughbred mare undergoing sinus surgery
    c. A 3-week-old foal undergoing colic surgery
    d. A 6-month-old foal undergoing umbilical hernia repair
6. Which of the following statements best describes endotracheal intubation in the horse?
    a. Intubation is performed blindly with the head and neck extended
    b. Intubation can only be performed in lateral recumbency
    c. A laryngoscope is useful for visualization of the larynx
    d. An endoscope is commonly used to facilitate intubation
7. The most common complications in horses during maintenance of anesthesia with inhalant anesthetics are:
    a. Hypoxemia, hypertension, and bradycardia
    b. Hypoxemia, hypotension, and bradycardia
    c. Hypoxemia, hypertension, and hypoventilation
    d. Hypoxemia, hypotension, and hypoventilation
8. Which drug is used to treat hypotension in the anesthetized horse?
    a. Dextrose
    b. Digoxin
    c. Dobutamine
    d. Doxycycline
9. Of all phases of anesthesia, recovery poses the highest risk to the horse, and is the phase over which the anesthetist has the least control.
    a. True
    b. False
10. A horse has recovered from anesthesia following arthroscopy and shows the following clinical signs: hard, swollen gluteal muscles, stiff gait, and reluctance to walk. The most likely cause is:
    a. Colic
    b. Myopathy
    c. Neuropathy
    d. Nephropathy