

CLINICAL PATHOLOGY MENTORSHIP



VM 22700

CRITERIA HANDBOOK AND LOGBOOK

INDEX OF NOTEBOOK

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Clinical Mentorship Tasks

1. Microscope Care and Cleaning
2. Mammalian Hematology
 - a. Blood Film Preparation and Staining
 - b. Manual Differential Count
 - c. Manual Packed Cell Volume and Total Plasma Protein
 - d. Manual Reticulocyte Count
 - e. Automated Complete Hematology Panel
3. Serum/Plasma Preparation, Chemistry/Electrolytes, Serology
 - a. Prepare Serum and Plasma
 - b. Chemistry and/or Electrolyte Panel
 - c. Serology
4. Urinalysis
5. Manual Differential and Reticulocyte – case provided by VTDL
 - a. Manual Differential
 - b. Manual Reticulocyte Count
6. Coagulation Tests
7. Crossmatch
8. Cytology
 - a. Ear Cytology
 - b. Canine Vaginal Cytology
 - c. Other Cytology
9. Non-mammalian Manual Differential, Packed Cell Volume, Total Protein

NOTE THE FOLLOWING DUE DATES FOR THE TASKS ABOVE:

Fall or Spring semester	5:00p.m. ET Thursday of week 2 – Task 1
	5:00p.m. ET Thursday of week 4 – Task 2
	5:00p.m. ET Thursday of week 6 – Task 3
	5:00p.m. ET Thursday of week 7 – Tasks 4-5
	5:00p.m. ET Thursday of week 9 – Tasks 6-7
	5:00p.m. ET Thursday of week 12 – Tasks 8-9
Summer session	5:00p.m. ET Thursday of week 2 – Task 1
	5:00p.m. ET Thursday of week 3 – Task 2
	5:00p.m. ET Thursday of week 5 – Task 3
	5:00p.m. ET Thursday of week 7 – Tasks 4-5
	5:00p.m. ET Thursday of week 8 – Tasks 6-7
	5:00p.m. ET Thursday of week 10 – Tasks 8-9

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.

Submissions will not be accepted after Thursday of the 12th week of Fall or Spring, or after Thursday of the 10th week of Summer.

All tasks may be submitted prior to due dates, and students are encouraged to do so. However, task one must be successfully completed before submitting any other tasks.

Cytology (Task 8) and non-mammalian hematology (Task 9) are often the most challenging tasks for which to obtain specimens. Students are strongly encouraged to be diligent in obtaining appropriate samples and performing these tasks as cases present to the clinic, before or during the semester. Delaying the search for samples until late in the semester may result in failure to obtain these specimens and complete the tasks.

Animal Use Guidelines

The student shall abide by the following guidelines when performing mentorship tasks:

1. A mentorship task may be performed only once on a single animal.
2. A student may perform a maximum of ten (10) minimally invasive tasks (denoted by one asterisk) on a single animal within a 24-hour period.
3. A student may perform a maximum of three (3) moderately invasive tasks (denoted by two asterisks) on a single animal within a 24-hour period.
4. When combining tasks, a student may perform a maximum of five (5) minimally and three (3) moderately invasive tasks on a single animal within a 24-hour period.
5. Tasks denoted with no asterisks do not involve live animal use.

For example, a student might perform the following tasks on an animal in a single day:

1. Restrain a dog in sternal recumbency
2. Restrain a dog in lateral recumbency
3. Restrain a dog for cephalic venipuncture
4. Restrain a dog for saphenous venipuncture
5. Restrain a dog for jugular venipuncture
6. Administer subcutaneous injection
7. Administer intramuscular injection
8. Intravenous cephalic injection – canine

Failure to comply with the Animal Use Guidelines may result in failure of the Clinical Mentorship.

STUDENT INFORMATION

GOALS OF VM 22700 CLINICAL PATHOLOGY MENTORSHIP

Working with a veterinary care facility, the student will perform tasks under the supervision of a clinical mentor (veterinarian or credentialed veterinary technician).

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.

In addition to the documentation, the Clinical Mentorship site supervisor will verify that the student performed the task under their supervision.

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 validate the educational process and insure that the performance of graduates of the Veterinary Technology 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 PERSONS

Any questions regarding the VM 22700 Clinical Mentorship process should be directed to either:

Pam Phegley, BS, RVT
Purdue University
Veterinary Technology Program
625 Harrison Street, Lynn Hall G171
West Lafayette IN 47907
(765) 496-6809
phegleyp@purdue.edu

Jennifer Smith, BS, RVT, RLAT
Purdue University
Veterinary Technology Program
625 Harrison Street, Lynn Hall G171
West Lafayette IN 47907
(765) 494-7618
jensmith@purdue.edu

PRE-REQUISITES FOR VM 22700 CLINICAL PATHOLOGY CLINICAL MENTORSHIP

Contracts and Agreements

Because of legal, liability and AVMA accreditation issues, the following documents must be completed *prior to beginning* the Clinical Mentorship

1. Facility Requirement Agreement
2. Clinical Mentorship Agreement
3. Supervisor Agreement
4. Health Risk and Insurance Acknowledgement
5. Professional Liability Insurance Coverage
6. Agreement and Release of Liability
7. Technical Standards Acknowledgement
8. Code of Conduct

These forms are available on the VTDL website for downloading, printout, and completion.

If more than one Clinical Mentorship course is taken, a separate Facility Certification, Clinical Mentorship Contract, and Supervisor Agreement must be completed for each course.

More than one Mentorship Supervisor may sign the mentorship logbook. Each must be either a DVM or a credentialed technician, and must complete a separate Supervisor Agreement.

Failure to complete and return the listed documents and the payment for Student Professional Liability Insurance Coverage will prevent the student from enrolling in the Clinical Mentorship.

Insurance

Two types of insurance are recommended or required for the student working in a Clinical Mentorship.

Health Insurance is highly recommended to cover the medical expenses should the student become injured while on the job. It is the student's responsibility to procure such insurance.

Liability Insurance is required to protect the student in the event of a suit filed against the student for acts he/she performed while in the Clinical Mentorship.

Each VTDL student is required to purchase, for a nominal fee, Professional Liability Insurance through Purdue University. This is done by completing the Professional Liability Insurance Coverage form and sending a check for the fee. This check must be separate from payment of course fees. The fee covers from the time of initiation of coverage until the subsequent July 31st.

Students will not be enrolled in Clinical Mentorships until the Professional Liability Insurance is paid, and the student is covered by the policy.

SELECTING THE CLINICAL MENTORSHIP SITE

FACILITY REQUIREMENTS

You must visit the Clinical Mentorship Site and determine if the following supplies and equipment are readily available to you for use during your Clinical Mentorship. You must complete and have the facility veterinarian sign the Facility Requirement Agreement.

The veterinary care facility must be equipped with the following equipment/supplies:

Microscope* and related supplies

- Binocular
- 10X oculars
- Objectives
 - 4-5X (scanning) (optional)
 - 10X (low power)
 - 40-50X (high dry power)
 - 100X (oil immersion)
- Mechanical stage
- Functional and properly aligned condenser and diaphragm
- Light source of at least 20 watts
- Immersion oil
- Lens paper
- Lens cleaning solution

*NOTE: All parts of the microscope should be clean, functional, properly adjusted and aligned. We highly recommend, if the microscope has not been professionally serviced within the last six (6) months and/or is in a questionable state of repair, it be professionally serviced. Microscopes which are in a state of disrepair, out of adjustment, or dirty internally or externally will create difficulties for the student in providing accurate results. If there is any question of the suitability of the microscope for use in hematology, cytology and urinalysis, service personnel will usually be able to assist you in determining appropriateness. Because of the great variability in the quality of microscopes, some microscopes meeting these minimum criteria may still not be suitable for this mentorship.

Hematology Instruments and Supplies

- Automated hematology analyzer with appropriate supplies capable of providing
 - Red blood cell counts
 - White blood cell counts + individual cell or composite differential
 - Platelet counts
 - Hematocrit
 - Hemoglobin (may be stand-alone instrument or a function of the automated hematology or chemistry analyzer)
- Microhematocrit (PCV) centrifuge
 - Microhematocrit (PCV) tubes, plain
 - Microhematocrit tube sealant
 - Microhematocrit reader
- Refractometer (with total protein and specific gravity scales)
- Frosted-end glass microscope slides
- Stains
 - Quick stain (ex. Diff-Quik®)
 - New Methylene Blue (NMB) for air-dry mount preparations (ex. Jorvet J324A)
Note: Must NOT be NMB stain designated specifically for the “Schalm” wet mount method of staining, nor NMB preparations for other purposes.

- Microscope (see previous requirements)
- EDTA blood collection tubes (appropriate for patient size)
- Laboratory wipes
- Small, plain test tubes
- Microscope slide mailers
- Hand tally (single-digit and/or multi-key differential counter) optional

Urinalysis

- Centrifuge appropriate for tubes and centrifuging urine
- Conical centrifuge tubes
- Urine chemistry test strips (minimum tests: pH, glucose, ketones, bilirubin, blood, protein)
- Frosted-end glass microscope slides
- Coverslips
- Stain (optional) NMB or Sedi (type) stain
- Disposable pipettes
- Microscope (see previous requirements)
- Refractometer (with total protein and specific gravity scales)
- Test tube rack

Clinical Chemistry

- Automated chemistry analyzer with appropriate supplies
- Plain, red-top blood collection tubes (appropriate for patient size)
- Serum or plasma separator blood collection tubes (appropriate for patient size)
- Anticoagulated blood collection tubes appropriate for patient size, specific tests, and brand of automated chemistry analyzer
- Centrifuge appropriate for the serum and plasma blood collection tubes
- Wooden applicator sticks

Serology

- Equipment, supplies and materials to perform two tests using two different formats
- Note: Two of the same format for two different tests (ex. SNAP® heartworm and SNAP® FeLV) do NOT constitute two different formats
- Examples of acceptable tests:
 - SNAP®/Elisa
 - SoloStep®/Lateral Flow
 - Slide or Card agglutination
 - Microwell

Crossmatch

- Commercially available crossmatch kit (ex. RapidVet®-H companion animal crossmatch, Alvedia)
- OR
- Simple crossmatch:
 - Minimum six 12 X 75mm (5mL) round-bottom disposable glass test tubes
 - Phosphate-buffered saline (PBS)
 - EDTA blood collection tubes
 - Plain, red-top tubes (Note: serum separator tubes are not appropriate for this procedure)
 - Centrifuge
 - Disposable pipettes
 - Wooden applicator sticks
 - Frosted-end glass microscope slides
 - Microscope (see previous requirements)
 - Thermostatically-controlled heating block or water bath

Coagulation Tests

- Equipment, supplies and materials to perform two tests using two different formats
- Note: Two of the same format for two different tests (ex. PT and APTT performed on the same make and model of analyzer do NOT constitute two different formats)
- Examples of acceptable tests:
 - Buccal bleeding time
 - Lancet
 - Timer
 - Filter or blotting paper
 - Roll gauze
 - Activated clotting time (ACT) (automated OR ACT tube test)
 - Automated ACT
OR
 - ACT test tubes
 - Thermostatically-controlled water bath or heating block
 - Timer
 - Automated Prothrombin time (PT)
 - Automated Activated Partial Thromboplastin Time (APTT)
 - Fibrinogen Assay (automated OR heat precipitation)
 - Automated fibrinogen and
OR
 - Thermostatically controlled heating block or water bath
 - Refractometer
 - Timer
 - Microhematocrit tube centrifuge
 - Microhematocrit tubes
 - Microhematocrit tube sealant

Cytology

- Exam gloves
- Refractometer (with total protein and specific gravity scales)
- Sterile, 6" cotton-tip swabs
- Quick Stain (ex. Diff-Quik®)
- Frosted-end glass microscope slides
- Sterile saline
- Sterile vaginal speculum (appropriate size for the patient)(optional)
- Sterile lubricant (optional)
- Mild non-irritating soap for vaginal cytology patient prep (optional)
- Microscope (see previous requirements)
- Microscope slide mailers
- Syringes and needles appropriate for fine needle aspiration technique
- Tissue forceps appropriate for impression smear technique
- Scalpel blade appropriate for tissue preparation for impression procedure

Patient Requirements

It is essential that the student perform the designated tasks on the same sample, when specified, so that related values may be verified when the submission is evaluated.

- Hematology (task 2a-2e): single sample from one mammalian patient; dog, cat, rabbit, or pig
- Clinical Chemistry (task 3a-3c): single sample from one mammalian patient; any species
- Urinalysis (task 4): one patient, any species
- Coagulation (task 6): appropriate patients for the two tests performed
- Crossmatch (task 7): one canine donor and one canine recipient
- Ear cytology (task 8a): two patients (canine and/or feline), one being pathologic. Do NOT use patients that have been treated in the past 48 hours with a topical ear medication
- Vaginal cytology (task 8b): one female canine patient; intact and/or with a reproductive pathology
- Other cytology (impression/wash/swab/aspirate/scraping/centesis) (task 8c): one patient, any species
- Hematology (task 9): one non-mammalian patient

SELECTION OF CLINICAL MENTORSHIP SUPERVISOR

The Clinical Mentorship Supervisor is the person who will sign your Logbook and verify performance of tasks at the Clinical Mentorship site. This person must be a credentialed veterinary technician (have graduated from an AVMA accredited program or met State requirements for credentialing as a veterinary technician) or a licensed veterinarian.

An individual who claims to be a “veterinary technician” but has not met the criteria for credentialing above is not eligible to be mentorship supervisor.

The individual is not considered to be an employee of Purdue University when acting as your Clinical Mentorship supervisor.

Each Clinical Mentorship Supervisor must complete a *Supervisor Agreement*. You must return this agreement with the other agreements prior to beginning your Clinical Mentorship. Multiple supervisors may be used for documentation of mentorship tasks. Each supervisor must complete a separate agreement.

Should your Clinical Mentorship Supervisor change during the course of the Clinical Mentorship, you will need to have your new supervisor complete a *Clinical Mentorship Supervisor Agreement* and return it to the Purdue VTDL office. These forms are available on the VTDL website for downloading and printing.

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. You are 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 doing the task to minimize the number of times you have to repeat the task. The components of each task are summarized:

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

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

Criteria – Lists specific, observable, objective behaviors that you must demonstrate for each task. Your ability to demonstrate each of these behaviors will be required in order to be considered as having successfully completed each task.

Number of Times Task Needs to be Successfully Performed – States the required number of times to repeat the tasks. The patient's name and the date each repetition of the task was performed must be recorded on the Task verification form.

EACH REQUIRED REPETITION OF THE TASK MUST BE PERFORMED ON A DIFFERENT ANIMAL. You cannot use the same animal to do all of the repetitions of a task. However, you can use the same animal to perform different tasks. In other words, you can't do three ear cleanings on the same animal, however, you can do an ear cleaning, an anal sac expression, and a venipuncture on the same animal.

Materials Submitted for Evaluation and Verification – These specific materials, which usually include video or other materials, must be submitted to demonstrate that you 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.

It is recommended that the video materials document all angles of the procedure. The purpose of the video and other material is to provide "concrete evidence" that you were able to perform the task to the standard required.

If you do not own a video camera, one may be borrowed or rented. Pre-planning the video procedures will help reduce the need to redo the video documentation. Explain what you are doing as you perform the video documentation, as narration will help the evaluator follow your thought process and clarify what is seen on the video. Voiceovers may be done to clearly explain what is being performed. At the beginning of each task, clearly announce what task you are doing, or insert a written title in the video.

Videotapes, photographs, 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.

Prepare two (2) sets of slides for each procedure and patient. Do **NOT** put

immersion oil on the films that are to be submitted to Purdue. Applying immersion oil to these films will negate our ability to evaluate the films and require the submission of new sets of films by the student. The student must save the films they read to review if necessary or to submit to the coordinator in case the initial films are destroyed in transit.

This validation is essential to help the Purdue VTDL meet AVMA accreditation criteria. Therefore, it is essential that you follow the evaluation and validation requirements.

Task Verification Forms – Each task has a form that must be completed and signed by the Clinical Mentorship Supervisor.

Supplementary Materials – Logs, written materials, photographs, or other forms/documentation may be required for specific tasks. Be sure to read the materials to be submitted for evaluation section very carefully and return all documented evidence as prescribed.

COMPLETION OF THE CLINICAL MENTORSHIP

The mentorship logbook includes due dates for each task. Each completed task must arrive at the veterinary technology office by the deadline (not a postmark date). It will often take a day or two for mail to reach the veterinary technology office once it gets to Purdue.

Paperwork may be submitted via

- E-mail to jensmith@purdue.edu or phegleyp@purdue.edu. ***This is the preferred method of submission.***
- FAX @ 765-496-2873
- Postal mail to 625 Harrison Street, Lynn Hall G171, West Lafayette, IN 47907

Videos may be submitted via

- Media Gallery of Blackboard. If submitted on Blackboard, send an e-mail to jensmith@purdue.edu or phegleyp@purdue.edu notifying of the submission. ***This is the preferred method of online submission***, since it does not limit how much you put on, is no cost to you, and automatically archives here. You must assign the videos to the correct course in order for the instructor to view them.
- Disc or flash drive by regular mail to 625 Harrison Street, Lynn Hall G171, West Lafayette, IN 47907

Slides

- Ship to 625 Harrison Street, Lynn Hall G171, West Lafayette, IN 47907

Late submissions will incur a grade penalty. Incomplete grades will no longer be assigned for mentorships at the end of each semester.

Feedback will be emailed until all tasks are completed successfully. A hard copy will be sent when the course is complete and a grade is assigned. As necessary, instructors may require resubmission of some tasks. When feedback is sent, due dates for resubmissions will be given. *It is crucial that students with pending feedback check their Purdue emails frequently 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.

CLINICAL MENTORSHIP TASKS

INTRODUCTION TO ESSENTIAL TASKS AND CRITERIA

Before starting each task:

1. Read the Goal, Description, Criteria, and Materials to be Submitted for Evaluation and Verification. Understand what is expected of you for each task.
2. Make sure you have whatever equipment and supplies you need to document the task. Pay particular attention to the details of what needs to be documented and submitted.
3. Make sure you obtain appropriate permissions where necessary. Please inform the facility's owner/manager of your activities. A good relationship with the veterinarian in charge is key to having a positive Clinical Mentorship experience.

After performing each task:

4. Label all items submitted so that the materials you submit for evaluation and validation at Purdue are identified as your submission.
5. Label all videos posted to Blackboard with the name of the task performed.
6. Submit materials to Purdue by the deadlines listed in the logbooks.

1. MICROSCOPE USE, CARE, AND CLEANING

NOTE: This is the first task of this course and it must be completed and submitted for evaluation before beginning the remaining tasks. It is crucial that a functional and properly equipped microscope is available to the student for completion of the tasks in this mentorship.

- Goal:** To identify, demonstrate and explain the function of the parts of a microscope, and to clean it properly.
- Description:** The student accurately identified, demonstrated, and explained the function of the parts of the microscope and demonstrated the cleaning procedure.
- Criteria:** The student accurately identified and explained, using correct terminology, the function of the following:
- Make (manufacturer) and model of the microscope
 - Oculars, including power of each
 - Focus adjustment ring (if so equipped)
 - Interpupillary distance adjustment device
 - Objectives, including power
 - Scanning (if so equipped)
 - Low power
 - High dry
 - Oil immersion
 - Other (specify)
 - Fine and coarse focus adjustment knobs
 - Stage, including mechanical stage adjustment device(s)
 - Left and right adjustment device
 - Forward and back adjustment device
 - Condenser, including
 - Vertical adjustment device
 - Horizontal control lever (iris diaphragm) adjustment device
 - Field Diaphragm
 - Iris adjustment lever (if so equipped)
 - On and off light switch
 - Rheostat control (if so equipped)
 - Location of light source (bulb)

Starting at the oculars and ending at the light sources, the student cleaned the microscope so the field of view with each objective was debris-free.

The student demonstrated and described verbally, in the correct order, the process of viewing with and adjustment of the microscope. The following must be included, in the proper order for the microscope used:

- Positioning of the slide on the stage
- Adjustment of the interpupillary device
- Adjustment of ocular focus ring (if so equipped)
- Positioning of each objective, lowest to highest power
- Positioning of the condenser, condenser (iris diaphragm) lever, light rheostat and field diaphragm in relation to each objective in use with this microscope
- Coarse and fine focus adjustment knobs

Number of Times Task Needs to be Successfully Performed: 1

Materials Submitted for Evaluation and Verification:

1. Task verification form for the microscope use, care and cleaning, signed by the clinical mentorship supervisor.
2. One video, narrated by the student, that clearly shows the parts of the microscope and the student identifying, describing the function, and describing the use, care and cleaning of the parts.

Date: _____

Student Name: _____

Supervisor Name: _____ RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

2A. MAMMALIAN HEMATOLOGY (BLOOD FILM PREPARATION FOR DIFFERENTIAL COUNT)

Note: *Task 2 is composed of five sub-tasks (a-e). All five tasks must be performed simultaneously on a single sample collected from the same mammalian patient (dog, cat, rabbit or pig).*

Goal: To prepare and properly stain a quality blood film.

Description: The student, using either the handheld or tabletop wedge method, will prepare a quality blood film from fresh EDTA anticoagulated blood, using a base slide. The student will properly stain the film with quick stain so the cells and their components may be appropriately differentiated and identified.

Criteria: The student properly mixed, by 6-8 gentle inversions, a properly collected and anticoagulated (EDTA) tube of fresh, clot-free, whole blood

The student filled a capillary tube with blood from the tube and placed a drop of blood approximately 1cm from the frosted end, by touching the capillary tube to the base slide

For the handheld method, the student held the base slide between the thumb and index finger

For the tabletop method, the student held the base slide on the outer corner of the frosted end of the slide, with the frosted end toward their body

With the spreader slide held at a 30-45° angle, the student brought the spreader slide back into the drop of blood, allowed the blood to spread out along the edge of the spreader slide, and then moved the spreader slide forward in a rapid, even motion

The student produced a blood film 1/2 to 2/3 the length of the slide

The blood film was slightly narrower than the width of the slide

The feathered edge of the blood film was relatively straight across or slightly curved and did not end abruptly or have tail-like extensions

When viewed macroscopically, the blood film appeared to have a gradual transition from the thicker body to the feathered edge

The blood film did not have pressure ridges, holes, scratches, streaks or ridges within the smear

The student allowed the blood film to air dry vertically, with frosted end up

The student stained the film with fresh quick stain, dipping the slide for approximately ten, one-second dips in the fixative, then the eosin (red) then the thiazine (blue) stains

The student held the slide vertically by the frosted end and rinsed the *back* of the slide with water

The student allowed the blood film to air dry vertically with the frosted end up

The student labeled the slide on the frosted end with patient ID, species, specimen type and date

Number of Times Task Needs to be Successfully Performed:

1 set of blood films for the student and 1 set of blood films for submission

Materials Submitted for Evaluation and Verification:

- 1. Task verification form signed by the clinical mentorship supervisor
- 2. One properly stained blood film and one properly unstained blood film from the same patient, submitted in an appropriate slide mailer
- 3. One video showing the preparation, staining, and labeling of a blood film. The student should provide a narrative of the steps being performed during the video.
- 4. Written evaluations of blood films (see below)

Patient ID _____

Species _____

Macroscopic description and evaluation of *unstained* film submitted:

Macroscopic description and evaluation of *stained* film submitted:

Low and high dry microscopic evaluation of *stained* film submitted:

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

2B. MAMMALIAN HEMATOLOGY (MANUAL DIFFERENTIAL COUNT)

Note: Task 2 is composed of five sub-tasks (a-e). All five tasks must be performed simultaneously on a single sample collected from the same mammalian patient (dog, cat, rabbit or pig).

Goal: To accurately classify and count the different types of white blood cells and evaluate the morphologic features of the red blood cells, white blood cells, and platelets.

Description: After preparation and staining of a blood film with quick stain, the student will count and classify 100 white blood cells. Additionally, the student will evaluate and report the morphology of the red blood cells, white blood cells and platelets and perform a white blood cell and platelet estimate.

Criteria: The student placed the slide from task 2a on the stage of the microscope

The student scanned the film under low power (10X objective) with the light, condenser and iris properly adjusted to identify and report the presence of any significant large objects (debris, microfilaria, platelet clumps, white blood cell aggregates, etc.), evaluate the staining quality of the film, and evaluate the distribution of cells

The student rotated the objective turret to the high dry (40-45X) objective, and readjusted the light, condenser and iris appropriately

The student performed a WBC estimate (average # WBC per 10 monolayer fields using the high dry objective, multiplied by 2000)

The student applied immersion oil to the film and rotated the objective turret to the oil immersion objective (100X), correctly adjusted the light, iris and condenser, and identified the appropriate starting area in the film for counting

The student observed, classified and counted 100 WBCs using correct units of measurement, reported the relative (%) and absolute (cells/microliter) value for each cell classification

The student evaluated and reported the morphology of the RBCs, WBCs and platelets based on the criteria in Appendix 1 and 2 in Regan et al: *Veterinary Hematology Atlas*

The student performed and reported a platelet estimate including written calculations:
Average # platelets in ten OIF multiplied by 20,000 = Estimated platelets ($\times 10^3$ /microliter)

The student counted and reported the number of nucleated RBC/100 WBC

Number of Times Task Needs to be Successfully Performed: 1

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. One properly identified, stained, uncounted (no immersion oil) blood film and one properly identified unstained blood film from the same patient, submitted in an appropriate slide mailer (**same slide as for 2a**)

3. One video showing the student performing the differential count. The student should provide a narrative of the steps being performed during the video. *Note: Only the initial setup and periodic adjustments of the microscope need to be on the video, not the entire time counting.*
4. Completed written report of findings using the form on the following page, using proper medical terminology and units of measurement

2B. MAMMALIAN HEMATOLOGY (MANUAL DIFFERENTIAL COUNT) WRITTEN REPORT

Patient ID _____

RBC, WBC, and Platelet Morphology (Specify):

WBC Estimate:

Relative WBC Counts (%):

Myelocytes: _____

Metamyelocytes: _____

Band Neutrophils: _____

Segmented Neutrophils: _____

Lymphocytes: _____

Monocytes: _____

Eosinophils: _____

Basophils: _____

Nucleated RBC: _____

Absolute WBC Counts:

Myelocytes: _____

Metamyelocytes: _____

Band Neutrophils: _____

Segmented Neutrophils: _____

Lymphocytes: _____

Monocytes: _____

Eosinophils: _____

Basophils: _____

Nucleated RBC: _____

2B. MAMMALIAN HEMATOLOGY (MANUAL DIFFERENTIAL COUNT)
WRITTEN REPORT (PAGE 2)

Platelet Estimate:

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

2C. MAMMALIAN HEMATOLOGY (MANUAL PACKED CELL VOLUME AND TOTAL PLASMA PROTEIN)

Note: Task 2 is composed of five sub-tasks (a-e). All five tasks must be performed simultaneously on a single sample collected from the same mammalian patient (dog, cat, rabbit or pig).

Goal: To accurately perform, read and record the results of a packed cell volume and total plasma protein.

Description: The student, using a sample of properly collected and mixed anticoagulated (EDTA) fresh whole blood, will properly fill, seal and centrifuge a plain capillary tube and using a card or circular reader, accurately read and record the result as a percent (%) of packed red blood cells and evaluate the plasma.

The student, using a clean, properly calibrated refractometer and plasma from the capillary tube used to read the PCV, broke the tube, loaded the refractometer and accurately read the total protein value and recorded the result in g/dl.

Criteria: **Packed Cell Volume**

The student mixed, by 6-8 gentle inversions, a properly collected and anticoagulated (EDTA) tube of fresh, clot-free whole blood

The student filled a plain capillary tube 2/3 to 3/4 full, wiped the outside of the tube with a lab tissue, and sealed the end with sealing clay

The student accurately identified the make (manufacturer) and model of the microhematocrit tube centrifuge

The student placed the capillary tube into a slot in a microhematocrit tube centrifuge with the sealed end to the outside edge, noting the slot number

The student balanced the centrifuge with a balance tube or another patient tube

The student secured the centrifuge lid and cover

The student set and verbally identified the appropriate centrifugation time (and speed if applicable)

After the centrifuge stopped, the student removed the tube and recorded the appearance of the plasma and buffy coat, and visually guessed the PCV and WBC count

Using a card reader, the student aligned the bottom of the red cell column with the zero line and the top of the plasma with the 100% line. The student read the packed cell volume at the top of the red cell column and recorded the value as a percentage

Using the value for PCV, the student calculated the approximate hemoglobin concentration in g/dl ($PCV \div 3 = \text{approximate hemoglobin (g/dl)}$)

Total Plasma Protein

The student accurately identified the make (manufacturer) and model of the refractometer

The student checked the calibration setting and cleanliness of the refractometer, identifying the scale and solution used to check calibration setting, and cleaned and/or adjusted if necessary

Using the patient's tube from the PCV, the student scored the tube above the buffy coat with the edge of a triangular file or corner of a microscope slide and snapped the tube by placing finger pressure on each side of the scored line

Holding the refractometer horizontally and with the cover plate in position on the prism, the student placed a drop of plasma adjacent to the cover plate, insuring that there was no contamination from the buffy coat, other cellular components, or glass shards. The student may enhance plasma flow by tapping the end of the tube close to the cover plate or dispensing the plasma with an appropriate pipetting bulb or insulin syringe

The student held the refractometer to their eye with the prism toward the light, focused if necessary, read the total protein value and recorded the result in grams per deciliter

The student cleaned the measuring prism and cover plate with water and dried them with a laboratory tissue

Number of Times Task Needs to be Successfully Performed: 1

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. One video showing the student performing the PCV and TPP procedures. The student should provide a narrative of the steps being performed during the video.
3. Written evaluations of PCV and TPP (see below)

Patient ID _____

Appearance of Plasma (circle one): Clear, Cloudy, Lipemic, Hemolyzed, Icteric, Other: _____

Buffy Coat Color: _____

Packed Cell Volume: _____

Total Plasma Protein: _____

Hemoglobin Calculation and Results:

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

2D. MAMMALIAN HEMATOLOGY (MANUAL RETICULOCYTE COUNT)

Note: Task 2 is composed of five sub-tasks (a-e). All five tasks must be performed simultaneously on a single sample collected from the same mammalian patient (dog, cat, rabbit or pig).

Goal: To accurately perform, calculate and record the results of a manual reticulocyte count.

Description: The student, using a sample of properly collected, mixed and anticoagulated (EDTA) fresh, clot-free whole blood, will prepare four blood films from blood stained with New Methylene Blue, identify and count the reticulocytes using a microscope with the 100X objective, calculate, and report the reticulocyte percentage (%).

Criteria: The student properly mixed, by 6-8 gentle inversions, a properly collected and anticoagulated (EDTA) tube of fresh, whole blood

The student identified the manufacturer and brand of New Methylene Blue stain used

The student dispensed and gently mixed 3 drops of blood and 3 drops of New Methylene Blue (NMB) stain in a small test tube and allowed the mixture to stand for 10-15 minutes at room temperature (or as designated by the manufacturer)

Notes: Use only NMB stain intended for air dry mount preparations, use only fresh, maintained stain that is at room temperature (68-77°F) or as designated by the manufacturer – check stain instructions. The NMB must NOT be designated specifically for the “Schalm” wet mount method of staining only; it must be capable of being used to prepare slides that are stained and air dried prior to viewing

After gently remixing and mixture of stain and blood, the student filled a plain capillary tube and used it to dispense a drop of the mixture onto a microscope slide

With the spreader slide held at a 45° angle, the student brought the spreader slide back into the drop, allowed it to spread out along the edge of the spreader slide, then moved the spreader slide forward in a rapid, even motion

The student prepared three additional slides in the same manner and allowed all slides to air dry vertically with the frosted end up

The student labeled the slides on the frosted end with patient ID, species, specimen type and date

Using the low power objective, the student found an area of even cell distribution near the feathered edge and brought the cells into rough focus with the coarse-focus knob

The student rotated the low power objective out of the way, dispensed a drop of immersion oil onto the slide, and swung the oil immersion objective into place and fine-focused on the cells.

The student checked the location of the area to be counted, an area in the monolayer, with approximately 150-200 cells/field

On the first film, the student counted 500 RBCs in consecutive fields using separate hand tallies, and kept track of the number of mature RBCs vs. reticulocytes present in the 500 RBCs

The student repeated the procedure for the second film and insured that the counts on the two films were within 20% of each other, and if not, repeated the test

With a total of 1000 RBCs counted between both films, the student reported the percentage of reticulocytes including written calculations (# of reticulocytes in 1000 RBCs divided by 1000= % of reticulocytes)

Number of Times Task Needs to be Successfully Performed: **1 set of NMB films for the student and 1 set of NMB films for submission**

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. Two properly identified, stained, uncounted (no immersion oil) blood films from the patient, submitted in an appropriate slide mailer
3. One video showing the student performing the manual reticulocyte count. The student should provide a narrative of the steps being performed during the video.
Note: Only the initial setup and periodic adjustments of the microscope need to be on the video, not the entire time counting.
4. Written evaluations of blood films (see below)

Patient ID _____

Macroscopic description and evaluation of stained blood film submitted:

Low and high dry microscopic evaluation of stained blood film submitted:

Reticulocyte Percentage Calculation and Results:

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

2E. MAMMALIAN HEMATOLOGY (AUTOMATED COMPLETE HEMATOLOGY PANEL)

Note: *Task 2 is composed of five sub-tasks (a-e). All five tasks must be performed simultaneously on a single sample collected from the same mammalian patient (dog, cat, rabbit or pig).*

Goal: To accurately perform, read and record the results of an in-house automated hematology panel/complete blood count

Description: The student, using a sample of properly collected and prepared whole blood, will accurately perform, read and record an in-house automated hematology panel and complete blood count

Criteria: The student identified the make (manufacturer) and model of the automated hematology analyzer

The student identified and described the instrumentation methodology and quality control program for the procedure

The student followed the manufacturer's established protocol for the performance of an in-house automated hematology panel/CBC

The student verbally reported the results, including proper units of measurement

Number of Times Task Needs to be Successfully Performed: **1**

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. One video showing the student performing the automated hematology panel procedure. The student should provide a narrative of the steps being performed during the video, including reporting the results.
3. Copy of the instrument results printout or a typed list of results

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

3A. PREPARE SERUM AND PLASMA

Note: Task 3 is composed of three sub-tasks (a-c). All three tasks must be performed simultaneously on a single sample collected from the same mammalian patient.

Goal: To prepare hemolysis- and lipemia-free serum and plasma from properly prepared samples

Description: The student, using a plain red-top collection tube, plain anticoagulated collection tube AND serum or plasma separation tube will properly collect and prepare samples of hemolysis and lipemia-free serum and plasma

Criteria: The student selected the appropriate vacuum collection tubes and the needle holder and needle or appropriate syringe and needle required to properly fill the three vacuum containers for the procedure, species, and size of the patient

The student verbally identified the following for each tube; the brand of tube and if the tube is plastic or glass

The student, without injury to the patient, selected an appropriate blood vessel for the collection of venous blood and collected the sample.

Based on the manufacturer's stated capacity of the vacuum collection tube, the student properly filled one plain red-top serum tube, one anticoagulated (EDTA or lithium heparin) tube, *and* one plasma or serum separator tube. The student filled the tubes to not less than 90% or more than 100% of the capacity stated for use. *Each of the three tubes must be shown on the video with the label on the tube facing away from the camera so the full may be evaluated. The student will state verbally the manufacturer's stated fill capacity.*

The student mixed, by inversion, only the appropriate tubes

The student allowed serum tubes to adequately clot prior to centrifugation, noting the time for the clot to fully form

The student "rimmed" the red top serum tubes prior to centrifugation

The student accurately identified the make (manufacturer) and model of the centrifuge

The student balanced the centrifuge with a balance tube or another patient tube and secured the centrifuge lid and cover

The student set and verbally identified the appropriate centrifugation time (and speed if applicable)

After the centrifuge stopped, the student removed the tube and harvested the serum and plasma with a disposable pipette, delivering it into clean, plain transparent tubes

The student verbally noted the amount and condition of serum and plasma harvested

The serum and plasma were free from hemolysis and lipemia

Number of Times Task Needs to be Successfully Performed: 1 each:

Plain, red-top serum tube, Anticoagulated (EDTA or lithium heparin) tube, and Plasma or serum separator tube

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. One video showing the student performing the collection and three preparations of serum and plasma, clearly showing the tubes after collection and following separation and placing into clearly labeled tubes. The student should provide a narrative of the steps being performed during the video.
3. Completed written information (see below)

Patient ID _____

Species _____

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

3B. CHEMISTRY AND/OR ELECTROLYTE PANEL

Note: *Task 3 is composed of three sub-tasks (a-c). All three tasks must be performed simultaneously on a single sample collected from the same mammalian patient.*

Goal: To accurately perform, read and record the results of a chemistry and/or electrolyte panel

Description: The student, using a sample of properly collected and prepared serum or plasma, will accurately perform, read and record an in-house automated chemistry and/or electrolyte panel

Criteria: The student identified the make (manufacturer) and model of the automated chemistry analyzer

The student identified and described the instrumentation methodology and quality control program for the procedure

The student followed the manufacturer's established protocol for the performance of in-house chemistry or electrolyte testing

The student demonstrated, described and accurately reported the results, including proper units of measurement for the procedure, and narrated clearly what was being done

Number of Times Task Needs to be Successfully Performed: 1

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. One video showing the student performing the in-house chemistry or electrolyte test. The student should provide a narrative of the steps being performed during the video, including reporting the results.
3. Printout or typed list of results
4. Completed written information (see below)

Patient ID _____

Date: _____

Student Name: _____

Supervisor Name: _____ RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

3C. SEROLOGY

Note: Task 3 is composed of three sub-tasks (a-c). All three tasks must be performed simultaneously on a single sample collected from the same mammalian patient.

Goal: To accurately perform, read, and record results of two serology tests using different methodologies

Description: The student, using a properly collected and prepared sample, described and accurately performed, read and recorded two in-house serology tests based on two different testing methodologies

Criteria: The student demonstrated and described verbally on video, the entirety of the procedures and accurately reported the results, including proper units of measurement

The student identified and described the instrumentation methodology and quality control program for each procedure (if applicable)

The student followed the manufacturer's established protocol for performance of the tests

Number of Times Task Needs to be Successfully Performed: 1 each of two different methodologies*

**Note: two different tests using the same methodology cannot be used, for example a SNAP test for heartworm and a SNAP test for FeLV would not be acceptable.*

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. One video showing the student performing the two serology tests. The student should provide a narrative of the steps being performed during the video.
3. Completed written information (see below)

Patient ID _____

Date: _____

Student Name: _____

Supervisor Name: _____ RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

4. URINALYSIS

- Goal:** To properly and accurately perform, read and record results of a urinalysis, including physical, chemical and microscopic observations
- Description:** The student, using a properly collected fresh urine (cystocentesis, catheterization or free catch), will prepare the sample and accurately perform, read and record findings for a urinalysis
- Criteria:** The student collected a sample of urine aseptically and without injury to the patient or personnel
- The student verbally described the physical properties of the urine (color, clarity, volume, specific gravity with a refractometer, foam, odor) and reported results using proper units of measurement
- The student verbally identified the manufacturer and brand of chemistry strips used and/or automated reader if used
- The student followed the manufacturer's protocols for and described verbally the chemical properties of the urine and reported the results using proper units of measurement
- The student prepared the urine for microscopic evaluation
- The student accurately identified the make (manufacturer) and model of the centrifuge
- The student balanced the centrifuge with a balance tube or another patient tube and secured the centrifuge lid and cover
- The student set and verbally identified the appropriate centrifugation time (and speed if applicable)
- After the centrifuge stopped, the student removed the tube and prepared the urine for microscopic evaluation and reported the results for the urinary sediment
- The student submitted a video of the procedures, clearly showing each step and narrating each step with correct medical terminology

Number of Times Task Needs to be Successfully Performed: 1

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor.
2. One video showing the student performing the urinalysis procedures. The student should provide a narrative of the steps being performed during the video using correct medical terminology to describe collection, preparation, and performing each step.
3. Completed written report of findings using the form on the following page, using proper medical terminology and units of measurement

URINALYSIS

Date: _____

Student Name: _____

Supervisor Name: _____ RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

4. URINALYSIS WRITTEN REPORT

Student Name: _____

Patient ID: _____

Species: _____

Time of Collection: _____

Time of Testing: _____

Method of Collection: _____
Refrigeration

Method of Preservation (circle one): None

Physical Evaluation

Volume (mL): _____

Color: _____

Turbidity: _____

Odor: _____

Foam: _____

Specific Gravity (Refractometer): _____

Sediment Analysis

WBC/HPF: _____

RBC/HPF: _____

Epithelial cells/HPF: _____

Sperm/HPF: _____

Bacteria/HPF: _____

Casts (Specify Type)/LPF: _____

Crystals (Specify Type)/LPF: _____

Other cells (Specify): _____

Chemistry Evaluation

Glucose: _____

Bilirubin: _____

Ketones: _____

Blood: _____

pH: _____

Protein: _____

Urobilinogen: _____

How well do the physical, chemical, and microscopic observations coincide with each other? Describe and explain.

5A. MANUAL DIFFERENTIAL COUNT CASES PROVIDED TO STUDENT BY VTDL

Goal: To properly and accurately perform and record results of a manual differential count on a case slide provided by the VTDL instructor

Description: The student, using a blood film provided by the VTDL instructor, will perform and report results for a manual differential count as described in Task 2b of this course

Criteria: The student performed macroscopic and microscopic critiques of the case slide provided

The student performed a manual differential count (relative and absolute counts using the total WBC count provided, and RBC, WBC and platelet morphology)

The student accurately reported the results of the count

The student wiped the oil off the slide with a laboratory tissue and returned the slide to Purdue after receiving completion feedback from the instructor

Number of Times Task Needs to be Successfully Performed: 1

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. Completed written report of findings using the form on the following page, using proper medical terminology and units of measurement

Date: _____

Student Name: _____

Supervisor Name: _____ RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

5A. MANUAL DIFFERENTIAL COUNT WRITTEN REPORT

Student Name: _____

Patient ID _____

RBC, WBC, and Platelet Morphology (Specify):

WBC Estimate:

Relative WBC Counts (%):

Myelocytes: _____

Metamyelocytes: _____

Band Neutrophils: _____

Segmented Neutrophils: _____

Lymphocytes: _____

Monocytes: _____

Eosinophils: _____

Basophils: _____

Nucleated RBC: _____

Absolute WBC Counts:

Myelocytes: _____

Metamyelocytes: _____

Band Neutrophils: _____

Segmented Neutrophils: _____

Lymphocytes: _____

Monocytes: _____

Eosinophils: _____

Basophils: _____

Nucleated RBC: _____

Platelet Estimate:

5B. MANUAL RETICULOCYTE COUNT CASES PROVIDED TO STUDENT BY VTDL

Goal: To properly and accurately perform and record results of a manual reticulocyte count on a case slide provided by the VTDL instructor

Description: The student, using a blood film provided by the VTDL instructor, will perform and report results for a manual reticulocyte count as described in Task 2d of this course

Criteria: The student performed macroscopic and microscopic critiques of the case slide provided

The student performed a manual reticulocyte count (percent and absolute counts using the total RBC count provided)

The student accurately reported the results of the count

The student wiped the oil off the slide with a laboratory tissue and returned the slide to Purdue after receiving completion feedback from the instructor

Number of Times Task Needs to be Successfully Performed: 1

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. Completed written report of findings using the form on the following page, using proper medical terminology and units of measurement

Date: _____

Student Name: _____

Supervisor Name: _____ RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

5B. MANUAL RETICULOCYTE COUNT WRITTEN REPORT

Student Name: _____

Patient ID _____

Macroscopic description and evaluation of stained blood film submitted:

Low and high dry microscopic evaluation of stained blood film submitted:

Reticulocyte Percentage Calculation and Results:

Absolute Reticulocyte Calculation and Results (Use Total RBC count provided on slide case):

6. COAGULATION TESTS

Goal: To accurately perform and record results of a two different in-house coagulation tests

Description: The student accurately performed two different in-house coagulation tests and read and recorded the results

Criteria: The student selected two different in-house coagulation tests from the following: buccal bleeding time, activated clotting time (ACT tube or automated), prothrombin time (PT), activated partial prothrombin time (APTT), fibrinogen assay (automated or heat precipitation), or other test approved by instructor

The student explained the rationale for the procedure

The student identified and described the instrumentation methodology and quality control program for each procedure (if applicable)

The student demonstrated and described verbally on video, the entirety of the procedures and accurately reported the results, including proper units of measurement

Number of Times Task Needs to be Successfully Performed: **1 each of two different methodologies***

**Note: two different tests using the same methodology cannot be used, for example, a PT and an APTT both performed on the same automated coagulation analyzer would not be acceptable*

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. One video showing the student performing the coagulation procedures. The student should provide a narrative of the steps being performed during the video, including the equipment and supplies needed for each test.
3. Completed written report of findings using the form on the following page, using proper medical terminology and units of measurement

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

6. COAGULATION TESTS WRITTEN REPORT

Student Name: _____

TEST #1

Patient ID: _____

Breed: _____

Species: _____

Age: _____

Gender: _____

What is the normal range of results for this test? _____

Are the results in the normal range for this test? _____

What specific components of the clotting cascade is (are) evaluated with this test?

TEST #2

Patient ID: _____

Breed: _____

Species: _____

Age: _____

Gender: _____

What is the normal range of results for this test? _____

Are the results in the normal range for this test? _____

What specific components of the clotting cascade is (are) evaluated with this test?

7. CROSSMATCH

Goal: To accurately collect blood samples for and perform crossmatch procedure

Description: The student collected samples from a potential blood donor and recipient and accurately performed a crossmatch, using either the traditional method or a commercial test kit, to determine compatibility for a possible blood transfusion, and correctly reported the findings

Criteria: The student demonstrated and described proper collection of samples from two animals: one donor and one recipient

The student demonstrated and described proper processing of the samples for a crossmatch procedure including identifying the donor and recipient samples as plasma or serum and the condition of the sample (NSF, hemolyzed, lipemic) prior to testing

The student demonstrated and described verbally on video, the entirety of the procedure and accurately reported the result of the crossmatch test, using proper medical terminology and units of measurement

Number of Times Task Needs to be Successfully Performed: 1

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor.
2. One video showing the student performing the crossmatch procedure. The student should provide a narrative of the steps being performed during the video, including the equipment and supplies needed for the test.
3. Copy of the manufacturer's protocol for the test if applicable
4. Completed written information on the following page

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

7. CROSSMATCH WRITTEN REPORT

Student Name: _____

Describe the significance of the Major Crossmatch:

Describe the significance of the Minor Crossmatch:

Describe the significance of the Donor Control:

Describe the significance of the Recipient Control:

8A. EAR CYTOLOGY

- Goal:** To properly collect, process, and accurately evaluate and report the cellular findings for ear cytology.
- Description:** The student properly collected a sample, and properly processed, accurately stained, and read and recorded the results for ear cytology.
- Criteria:** The student demonstrated and described proper care of the patient, collection, processing, evaluation and accurate reporting of the various cells found in the designated specimen
- Using proper medical terminology, the student accurately identified specific anatomical structures in the collection of the specimens
- Using proper medical terminology, the student accurately identified and demonstrated the instruments and supplies necessary for the entire procedure, and described the rationale for their use
- Using proper medical terminology and units of measurement, the student accurately reported the results of the prepared specimens

Number of Times Task Needs to be Successfully Performed: 2

One patient must be pathologic. Do NOT use patients that have been treated in the past 48 hours with a topical ear medication. 1 set of films for the student and 1 set of films for submission from 1 patient to be submitted.

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor.
2. One video showing the student performing and describing the cytology process (collection, preparation, reading and reporting). The student should provide a narrative of the steps being performed during the video, including the equipment and supplies needed for the tests. Anatomical structures and instrumentation must also be addressed.
3. One properly identified, stained, unread (no immersion oil) film and one properly identified unstained film from the same patient, submitted in an appropriate slide mailer
4. Completed written report of findings using the form on the following page, using proper medical terminology and units of measurement

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

8A. EAR CYTOLOGY WRITTEN REPORT

Student Name: _____

Patient #1 ID and Species: _____

Current Topical Medications: _____

RIGHT EAR

Appearance of Ear (Describe):

Appearance of Exudate (Color, Odor):

Microscopic Evaluation (avg. #/OIF)

RBC: _____

WBC: _____

Epithelial Cells: _____

Yeast: _____

Bacteria (Rods): _____

Bacteria (Cocci): _____

Parasites: _____

Abnormal Cells (#/OIF and describe):

Other (Specify): _____

LEFT EAR

Appearance of Ear (Describe):

Appearance of Exudate (Color, Odor):

Microscopic Evaluation (avg. #/OIF)

RBC: _____

WBC: _____

Epithelial Cells: _____

Yeast: _____

Bacteria (Rods): _____

Bacteria (Cocci): _____

Parasites: _____

Abnormal Cells (#/OIF and describe):

Other (Specify): _____

8A. EAR CYTOLOGY WRITTEN REPORT (PAGE 2)

Patient #2 ID and Species: _____

Current Topical Medications: _____

RIGHT EAR

Appearance of Ear (Describe):

Appearance of Exudate (Color, Odor):

Microscopic Evaluation (avg. #/OIF)

RBC: _____

WBC: _____

Epithelial Cells: _____

Yeast: _____

Bacteria (Rods): _____

Bacteria (Cocci): _____

Parasites: _____

Abnormal Cells (#/OIF and describe):

Other (Specify): _____

LEFT EAR

Appearance of Ear (Describe):

Appearance of Exudate (Color, Odor):

Microscopic Evaluation (avg. #/OIF)

RBC: _____

WBC: _____

Epithelial Cells: _____

Yeast: _____

Bacteria (Rods): _____

Bacteria (Cocci): _____

Parasites: _____

Abnormal Cells (#/OIF and describe):

Other (Specify): _____

8B. VAGINAL CYTOLOGY

Goal: To properly collect, process and accurately evaluate and report the cellular findings for canine vaginal cytology.

Description: The student properly collected a sample for vaginal cytology and properly processed, accurately stained, and read and recorded the results.

Criteria: The student demonstrated and described proper care of the patient, collection, processing, evaluation and accurate reporting of the various cells found in the designated specimen

Using proper medical terminology, the student accurately identified specific anatomical structures in the collection of the specimen

Using proper medical terminology, the student accurately identified and demonstrated the instruments and supplies necessary for the entire procedure, and described the rationale for their use

Using proper medical terminology and units of measurement, the student accurately reported the results of the prepared specimen

Number of Times Task Needs to be Successfully Performed: 1 set of films for the student and 1 set of films for submission

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor.
2. One video showing the student performing and describing the cytology process (collection, preparation, reading and reporting). The student should provide a narrative of the steps being performed during the video, including the equipment and supplies needed for the test. Anatomical structures and instrumentation must also be addressed.
3. One properly identified, stained, unread (no immersion oil) film and one properly identified unstained film from the same patient, submitted in an appropriate slide mailer
4. Completed written report of findings using the form on the following page, using proper medical terminology and units of measurement

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

**8B. CANINE VAGINAL CYTOLOGY
WRITTEN REPORT**

Student Name: _____

Patient ID: _____

Appearance of labia and behavior of patient (describe):

Appearance of discharge (color, consistency, odor):

Microscopic evaluation (avg. # / HPF)

Basal: _____

Intermediate: _____

Parabasal: _____

Superficial: _____

Foam: _____

Bacteria (specify Rods or Cocci): _____

Metestral: _____

Mucus: _____

RBC: _____

Debris: _____

WBC (specify): _____

Other/Abnormal Cells (Specify/describe):

8C. OTHER CYTOLOGY

Goal: To properly collect, process and accurately evaluate and report the cellular findings for a biopsy/aspirate/imprint/scraping/swab/centesis (other than urine) or wash cytology procedure, and recognize when the prepared sample must be interpreted by a veterinary clinical pathologist.

NOTE: Depending on the procedure and at the discretion of the attending DVM, the student may assist with collection or collect the sample from a biopsy/ aspirate/ imprint/ scraping/ swab/ centesis/ wash

Description: The student properly collected a biopsy/ aspirate/ imprint/ scraping/ swab/ centesis/ wash and properly processed, accurately stained, and read and recorded the results. The student also recognized when the prepared sample must be interpreted by a veterinary clinical pathologist.

Criteria: The student demonstrated and described proper care of the patient, collection, processing, evaluation and accurate reporting of the various cells found in the designated specimen

Using proper medical terminology, the student accurately identified specific anatomical structures in the collection of the specimen

Using proper medical terminology, the student accurately identified and demonstrated the instruments and supplies necessary for the entire procedure, and described the rationale for their use

Using proper medical terminology and units of measurement, the student accurately reported the results of the prepared specimen

Number of Times Task Needs to be Successfully Performed: 1 set of films for the student and 1 set of films for submission

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor.
2. One video showing the student performing and describing the cytology process (collection, preparation, reading and reporting). The student should provide a narrative of the steps being performed during the video, including the equipment and supplies needed. Anatomical structures and instrumentation must also be addressed.
3. One properly identified, stained, unread (no immersion oil) film and one properly identified unstained film from the same patient, submitted in an appropriate slide mailer
4. Completed written report of findings using the form on the following page, using proper medical terminology and units of measurement

Date: _____

Student Name: _____

Supervisor Name: _____ RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

8C. OTHER CYTOLOGY WRITTEN REPORT

Student Name: _____

Patient ID: _____

Species: _____

Specimen: _____

Reason for biopsy/aspirant/imprint/scraping/swab/centesis/wash (May **NOT** be urine, vaginal or ear specimen):

Describe macroscopic appearance of sample:

Fluid Evaluation (if applicable)

Fluid Specific Gravity: _____

Fluid Total Protein: _____

Fluid Color and Clarity: _____

Microscopic Evaluation

Smear preparation method/technique: _____

Stain Used: _____

Specify type and numbers of cells per OIF:

With consideration to your findings on this film, should you suggest to the attending DVM they should review the film and/or refer to a clinical pathologist? Yes or No; Why or why not?

9. NON-MAMMALIAN MANUAL DIFFERENTIAL COUNT, PACKED CELL VOLUME AND TOTAL PLASMA PROTEIN

Goal: Using the goals and criteria from Task 2a-2c, collect a sample of whole blood from a non-mammalian patient, appropriately prepare and stain blood films, macroscopically and microscopically critique, read, and report the results. Perform and report the packed cell volume, total plasma protein and calculated hemoglobin of the sample.

NOTE: The student may assist with the blood collection.

Number of Times Task Needs to be Successfully Performed: 1 set of films for the student and 1 set of films for submission

Materials Submitted for Evaluation and Verification:

1. Task verification form signed by the clinical mentorship supervisor
2. One properly identified, stained, uncounted (no immersion oil) blood film and one properly identified unstained blood film from the same patient, submitted in an appropriate slide mailer
3. Completed written report of findings using the form on the following page, using proper medical terminology and units of measurement

Date: _____

Student Name: _____

Supervisor Name: _____

RVT, CVT, LVT
DVM, VMD

I verify that the student performed this task under my supervision.

Signature of Clinical Mentorship Supervisor: _____

9. NON-MAMMALIAN MANUAL DIFFERENTIAL COUNT, PCV AND TPP WRITTEN REPORT

Student Name: _____

Patient ID: _____ Species _____ Breed: _____

Anticoagulant Used: _____

Macroscopic description and evaluation of *unstained* film submitted:

Macroscopic description and evaluation of *stained* film submitted:

Low and high dry microscopic evaluation of *stained* film submitted:

RBC, WBC, and Platelet Morphology (Specify):

Relative WBC Counts (%):

Myelocytes: _____

Lymphocytes: _____

Metamyelocytes: _____

Monocytes: _____

Band Heterophils: _____

Eosinophils: _____

Segmented Heterophils: _____

Basophils: _____

PCV/TP

Appearance of Plasma (circle one): Clear, Cloudy, Lipemic, Hemolyzed, Icteric, Other (Specify): _____

Buffy Coat Color: _____

Actual Packed Cell Volume: _____

Total Plasma Protein: _____

Hemoglobin Calculation and Results: