

VETT 113

Clinical Laboratory Procedures in Veterinary Medicine

4 Credits: 3 hours lecture and 3 hours lab

Community College of Baltimore County

Common Course Outline

Description

VETT 113 – Clinical Laboratory Procedures in Veterinary Medicine: consists of lecture and lab. Information on principles and procedures in veterinary hematology, hemostasis, clinical chemistry, urinalysis, serology and immunology, cytology, parasitology, and relevant aspects of microbiology, is presented. The lab component focuses on the successful performance of common procedures in the veterinary practice laboratory. Techniques of sample collection, laboratory preparation and analysis are presented.

Pre-requisite(s): VETT 107, VETT 109, VETT 111

Overall Course Objectives

Upon completion of this course, students will be able to:

1. explain basic hematopoiesis and its characteristics;
2. prepare and interpret a blood smear, including a CBC (complete blood count) with differential;
3. prepare and interpret absolute white blood cell counts;
4. explain the hemocytometer and its application (avian);
5. prepare and interpret a platelet count and reticulocyte count;
6. explain the basic concepts of hemostasis;
7. recognize normal and abnormal hematology;
8. identify the characteristics of ectoparasites, endoparasites, intracellular parasites, and blood parasites;
9. prepare and interpret a urinalysis, both stained and unstained; urine strips (chemical analysis), urine specific gravity (USG read on refractometer), and sediment (microscopic analysis);
10. prepare and interpret fecal analysis of samples (e.g. direct smear, wet mount, flotation, centrifugation, sedimentation);
11. determine basic concepts of sample collection and preparation for sending specimens to an outside reference laboratory;
12. prepare and interpret various in-house diagnostic tests including Idexx SNAP tests, CBC (complete blood count with differential), chemistries, and electrolytes;
13. prepare and interpret heartworm testing; occult serological test (ELISA), microfilaria tests; direct, modified Knotts technique, buffy coat examination of centrifuged microhematocrit tube (Cornell); and
14. summarize biochemical profiling, cytology, serology, and mastitis testing in dairy cows, using the California Mastitis Test (CMT).

The Common Course Outline (CCO) determines the essential nature of each course.

For more information, see your professor's syllabus.

Major Topics

- I. Introduction to Laboratory Procedures
 - a. Use and care of equipment
 - b. In-house versus outside laboratory testing
 - c. Record keeping
- II. Laboratory Equipment and Instrumentation
 - a. Use and care of equipment
 - b. Calibration
 - c. Microscope Usage
- III. Sample Collection and Handling
- IV. Laboratory Safety (OSHA Regulations)
- V. Hematology and Blood Chemistry
 - a. Blood Smears
 - b. Cell Identification and Function
 - c. Complete Blood Count (CBC) with Differential
 - d. White Blood Cell Count Estimate
 - e. Absolute White Blood Cell Counts
 - f. Packed Cell Volume and Total Protein
 - g. Platelet Estimate
 - h. Reticulocyte Percent
 - i. Corrected Reticulocyte Percent
 - j. Absolute Reticulocyte Count
 - k. Hemostasis (Clotting, Coagulation and Fibrinolysis)
 - l. Biochemical Profiles
- VI. Abnormal Hematology
- VII. Immunology and Serology
- VIII. Microbiology and Cytology
- IX. Clinical Pathology
- X. Parasitology
 - a. Endoparasites
 - b. Ectoparasites
 - c. Intracellular Parasites
 - d. Heartworm Disease
- XI. Urinalysis
 - a. Visual Inspection
 - b. Urine Specific Gravity
 - c. Chemical Strip Analysis
 - d. Sediment Analysis (Slide)
- XII. Fecal Analysis
 - a. Fecal Flotation
 - b. Wet Mount
 - c. Direct Smear
 - d. Fecal Centrifugation

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- Two examinations
 - The Common Course Outline (CCO) determines the essential nature of each course.
 - For more information, see your professor's syllabus.

- Two quizzes
- Two laboratory practicums

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the most current APA format.

Other Course Information

An overall grade of “C” (70%) or higher is required for satisfactory completion of the course.

Date Revised: 3/4/2025