ANHLT 151 Course Outline as of Fall 2017

CATALOG INFORMATION

Dept and Nbr: ANHLT 151 Title: VET LAB IMAGING PROC
Full Title: Veterinary Laboratory and Imaging Procedures
Last Reviewed: 5/8/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	1.50	17.5	Lecture Scheduled	26.25
Minimum	2.00	Lab Scheduled	1.50	8	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 52.50 Total Student Learning Hours: 105.00

Title 5 Category:	AA Degree Applicable
Grading:	Grade or P/NP
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
This course will introduce students to common tests performed in veterinary medicine. Collection of quality samples, appropriate sample handling and test protocols will be discussed. Students will run tests on blood, urine, feces, and skin samples. Laboratory procedures performed will include clinical biochemistry, cytology, hematology, immunology, basic microbiology, parasitology, urinalysis and basic necropsy techniques. This class will include safe and diagnostic use of imaging modalities including radiography, radiation safety principles, ultrasound principles and basic endoscopy.

Prerequisites/Corequisites:
Course Completion of ANHLT 52

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Schedule of Classes Information:
Description: This course will introduce students to common tests performed in veterinary medicine. Collection of quality samples, appropriate sample handling and test protocols will be

discussed. Students will run tests on blood, urine, feces, and skin samples. Laboratory procedures performed will include clinical biochemistry, cytology, hematology, immunology, basic microbiology, parasitology, urinalysis and basic necropsy techniques. This class will include safe and diagnostic use of imaging modalities including radiography, radiation safety principles, ultrasound principles and basic endoscopy. (Grade or P/NP)
Prerequisites/Corequisites: Course Completion of ANHLT 52
Recommended: Eligibility for ENGL 100 or ESL 100
Limits on Enrollment:
Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	Inactive:
IGETC:	**Transfer Area**	Effective:	Inactive:

CSU Transfer:	Effective:	Inactive:
UC Transfer:	Effective:	Inactive:

CID:

Certificate/Major Applicable:
Certificate Applicable Course

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Demonstrate proper handling and technique for completing common veterinary diagnostic procedures.
2. Describe and discuss proper technique for sample collection for common veterinary tests including blood, urine, skin, and tissue samples.
3. Identify, describe and demonstrate proper and safe technique for radiography and other imaging techniques.

Objectives:
Upon completion of this course, the student should be able to:
1. Identify and demonstrate common laboratory equipment found in small animal veterinary practices.
2. Discuss sample collection equipment, handling technique, and common sample preparation protocols.
3. Demonstrate use of hematrocrit tubes and perform a Packed Cell Volume and Total Protein analysis.
4. Demonstrate a manual hematologic evaluation including leukocyte identification, poikilocyte identification, and manual platelet estimation.
5. Discuss appropriate clinical biochemistry sample preparation and most common disorders associated with typical biochemistry abnormalities.
6. Demonstrate a fecal floatation and identify common ova that may parasitize canine and feline patients.

7. Demonstrate a skin scraping and identify common ectoparasites that may infest canine and feline patients.
8. Demonstrate appropriate fine needle aspirate collection and distinguish between cytology findings of inflamed, neoplastic and infectious samples.
9. Discuss the technology and technique in common ELISA (Enzyme-Linked Immunosorbent Assay) Snap tests.
10. Demonstrate appropriate gross necropsy protocol and specimen collection for histopathologic evaluation.
11. Demonstrate proper sample collection and culture plating techniques for bacterial cultures and microbial sensitivity testing.
12. Discuss technology used to create radiographs and evaluate radiograph protocols.
13. Identify personal protective equipment used in radiology and evaluate radiograph protocols for radiation risks and safety.
14. Discuss technology and utilization of imaging by ultrasound and endoscopy.

Topics and Scope:

1. Laboratory equipment and use
   a. Infection and safety
   b. Microscopes
   c. Refractometers
   d. Centrifuges
   e. Blood analyzers
   f. Collection tubes and sample handling
   g. Stains and slide handling
   h. Syringes and needle handling
   i. Disposal protocols
2. Blood testing
   a. Vascular anatomy and sample collection
   b. Hematocrit tubes and Packed Cell Volume
   c. Common serum chemistries and electrolytes
   d. In-house chemistry machines
   e. Hormone and drug assays
   f. Immunology assays
   g. Enyzme Linked Immunosorbent Assays (ELISA tests)
   h. Veterinary laboratories and shipment protocols
3. Complete blood counts
   a. Blood smear techniques
   b. Erythrocyte lineage and identification
   c. Leukocyte lineages and identification
   d. Platelet lineages and identification
   e. Blood cell abnormalities
   f. Automated CBC machines
4. Parasitology sample evaluation
   a. Endoparasites and Ectoparasite life-cycles
   b. Fecal sample collection and handling
   c. Fecal floatation protocols
   d. Fecal smear and sedimentation protocols
   e. Examination and identification of parasite ova on fecal analysis
   f. Skin scraping and mite identification
   g. Tape preparations, trichograms and ectoparasite identification
   h. Dermatophyte testing

5. Urine sample evaluation
   a. Cystocentesis
   b. Other urine collection techniques including catheterization
   c. Urine handling and visual evaluation
   d. Urine reagent strips
   e. Urine cytology including crystals and casts
   f. Urine specific gravity
6. Cytology
   a. Fine needle aspirates
   b. Punch biopsies
   c. Impression smears
   d. Slide preparation, staining, and sample handling
   e. Joint, marrow and special sample protocols
   f. Cytology evaluation including typical findings on inflammatory, neoplastic and infectious tissues
   g. Otoscope use and aural cytology evaluation
7. Microbiology
   a. Sample handling and collection
   b. Bacterial growth and growth media
   c. Agar plate and incubation protocols
   d. Bacterial identification and speciation testing
   e. Antibiotic sensitivity testing
8. Radiology
   a. Patient positioning and specialized restraint equipment
   b. Radiograph terminology
   c. Image production and radiation emission
   d. Safety and personal protective equipment
   e. Radiograph techniques and settings
   h. Contrast materials and special studies
   i. Radiograph documentation and legalities
9. Other imaging modalities
   a. Patient positioning and specialized restraint equipment
   b. Ultrasound terminology and image production
   c. Abdominal ultrasonography
   d. Echocardiography
   e. Endoscopy equipment and maintenance
   f. Common endoscopic studies
   g. Endoscopic sample collection equipment and handling

All topics are covered in both the lecture and lab parts of the course.

Assignment:

1. Reading from text or instructor handouts (20-40 pg/wk)
2. Review and rewrite diagnostic protocols
3. Quizzes (up to 10), midterm evaluations (1 or 2), final examination

Lab Assignments
1. Create, stain/process, examine and report results from samples
2. Completion of Lab activities: protocol critique, interpretation of laboratory results, identification of lab errors and corrective measures

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.	Writing 0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab activities, protocol evaluation	Problem solving 20 - 40%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Collection, processing and analysis of diagnostic samples	Skill Demonstrations 20 - 30%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes and exams: multiple choice, true/false, short answer, identification (cells, ova, tissues) from microscope slides, printed images, radiographs or other images	Exams 40 - 60%

Other: Includes any assessment tools that do not logically fit into the above categories.

None	Other Category 0 - 0%

Representative Textbooks and Materials:
Laboratory Procedures for Veterinary Technicians. 6th ed. Hendrix, Charles and Sirois, Margi. Mosby. 2015
Lavin’s Radiography in Veterinary Technology. 5th ed. Brown, Marg and Brown, Lois. Saunders. 2013
Instructor prepared materials