ANHLT 151 Course Outline as of Fall 2011

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 companion animal 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. Preparation of samples for veterinary evaluation such as biopsies and cytology smears will also be covered. This class will include safe and diagnostic use of imaging modalities including radiographs and ultrasound.

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 companion animal 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.

Preparation of samples for veterinary evaluation such as biopsies and cytology smears will also be covered. This class will include safe and diagnostic use of imaging modalities including radiographs and ultrasound. (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

Outcomes and 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) Demonstrate use of hematrocrit tubes and perform a Packed Cell Volume and Total Protein analysis.
3) Discuss sample collection tubes including their use and appropriate sample handling techniques.
4) Demonstrate a manual complete blood count (CBC) including leukocyte identification.
5) Demonstrate a fecal floatation and identify common ova that may parasitize canine and feline patients.
6) Demonstrate a skin scraping and identify common ectoparasites that may infest canine and feline patients.
7) Discuss appropriate fine needle aspirate collection and handling.
8) Demonstrate collection and cytologic evaluation of samples from canine aural cytology.
9) Discuss common ophthalmologic evaluations performed on canine and feline patients.
10) Discuss the technology and technique in common ELISA (Enzyme-Linked Immunosorbent Assay) Snap tests.
11) Demonstrate proper sample collection and culture plating techniques for bacterial cultures.
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 used in ultrasound examinations.

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. 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) Fecal sample evaluation
   a. Endoparasites and parasite lifecycles
   b. Fecal sample collection and handling
   c. Fecal floatation protocols
   d. Fecal smear and sedimentation protocols
   e. Examination and identification of parasite ova
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) Skin testing
   a. Ectoparasites
   b. Skin scrapes
   c. Dermal impression smears
   d. Trichogram and tape preparations
   e. Dermatophyte testing
7) 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
8) Ear testing

a. Otoscope use and ear canal evaluation
b. Aural sample collection
c. Aural cytology

9) Eye testing
a. Restraint and handling for ophthalmic exam
b. Ocular imaging
c. Fluorescein stains
d. Shirmer tear testing
e. Intraocular pressure measurement

10) Serology
a. Immune system review
b. Antibody and antigen assays
c. ELISA tests
d. Common in house Snap tests

11) 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
f. PCR (Polymerase chain reaction) and other new testing modalities

12) 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
f. Film handling and development
g. Digital imaging
h. Contrast materials and special studies
i. Radiograph documentation and legalities
j. Equipment maintenance

13) Ultrasound
a. Patient positioning and specialized restraint equipment
b. Ultrasound terminology and image production
c. Abdominal ultrasonography
d. Echocardiography
e. Other ultrasound studies

14) Other imaging modalities
a. MRI (Magnetic Resonance Imaging)
b. CT (Computerized Tomography)
c. Nuclear Medicine

Assignment:

1. Reading from text or instructor handouts (20-40 pg/wk)
2. Review and rewrite diagnostic protocol
3. Create, stain, examine and report results from samples
4. Lab activities: protocol critique, interpretation of laboratory results, identification of lab errors and corrective measures
5. Quizzes (up to 10), midterm evaluations (1 or 2), final examination

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.

Written homework, protocol creation	Writing 10 - 20%

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

Lab activities	Problem solving 20 - 30%

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

Collection, processing and analysis of canine and feline samples	Skill Demonstrations 30 - 40%

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 30 - 40%

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 5th ed by Charles Hendrix and Margi Sirois, published by Mosby, 2007

Applied Pharmacology for Veterinary Technicians 4th ed by Boyce Wanamaker and Kathy Massey, published by Saunders/Elsevier, 2009

Essential Calculations for Veterinary Nurses and Technicians 2nd ed by Terry Lake and Nicola Green, published by Butterworth-Heinemann, 2008

Instructor prepared materials