

VS205
Diagnostic Imaging

3 Credits

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Reviewer: Dr. Robyn Rodgers

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VS205 Version: 7



Diagnostic Imaging

Calendar Description

This course studies all methods of diagnostic imaging, including radiographs, ultrasound, endoscopy, MRI and CAT scan. Care and use of equipment, safety, quality control, and positioning for small animals, horses and exotics are discussed.

Rationale

This course is essential for Animal Health Technology students. Diagnostic images are taken daily in veterinary medicine and producing quality images will be the duty of the technologist. Having an in-depth understanding of techniques, safety, animal positioning and evaluation of these images for quality are necessary to assist in better patient care.

Prerequisites

None

Co-Requisites

None

Course Learning Outcomes

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

1. explain and demonstrate the proper handling and care of all of the diagnostic imaging equipment.
2. identify all of the safety equipment that must be worn when taking a diagnostic image.
3. implement safety measures for the patient and others in the imaging area.
4. perform quality control tests on radiographic equipment.
5. use a technique chart to properly set the x-ray machines.
6. accurately measure an anatomical body part to be radiographed.
7. explain special radiographic procedures and be able to take x-rays using the techniques.
8. explain the various labeling techniques used for identification of images.
9. properly position small animals for a wide variety of images.
10. explain darkroom procedures and automatic processing.

11. assess the quality of a diagnostic image and how to make appropriate changes for improvement.
12. explain the different types of radiographic film, cassettes, and screens.
13. use both Computed Radiography and Direct Digital Radiography to obtain images.
14. properly position large animals for various images.
15. explain the value of images obtained by ultrasound, CAT scans, MRI and endoscopy.
16. use the parallel and bisecting angles to obtain quality dental radiographs in small animals.
17. explain the special consideration when obtaining bird, pocket pet and exotic diagnostic images.
18. perform avian radiographs.
19. properly file digital diagnostic images.
20. accurately complete the log book after every diagnostic image is obtained.
21. explain hands free radiography and how it contributes to safety.

Resource Materials

Required Text:

None

Reference Texts:

Brown, M, et al. (2018). *Lavin's Radiography for Veterinary Technicians* (6 ed.). Elsevier.

Bassert, J. M., & Thomas, J. A. (2018). *McCurnins Clinical textbook for Veterinary Technicians* (9th ed.). St. Louis, Missouri: Elsevier.

Conduct of Course

This course consists of 42 lecture hours and 18 lab hours. The lecture portion of the course covers the theory and explains the techniques used. The lab portion allows the students to implement the lecture by using the equipment and positioning large, small and exotic patients to obtain quality diagnostic images.

Evaluation Procedures

Lecture Portion*

| | |
|---------------------|-----|
| Midterm Exam | 15% |
| Assignments/Quizzes | 20% |
| Final Exam | 30% |

Lab Portion**

| | |
|-----------------|-------------|
| Lab Assignments | 20% |
| Skills | <u>15%</u> |
| Total | 100% |

** A passing grade of "B-" must be obtained in the lab portions of this course in order for a "pass" grade to be given. *A "C" must be obtained in the lecture portion of this course in order for a pass grade to be given.

Lakeland College is committed to the highest academic standards. Students are expected to be familiar with Lakeland College policies related to academic conduct and academic honesty and to abide by these policies. Violations of these policies are considered to be serious and may result in suspension or expulsion from the College.

Grade Equivalents and Course Pass Requirements

| | | | | | | | | | | | | |
|---------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Letter | F | D | D+ | C- | C | C+ | B- | B | B+ | A- | A | A+ |
| Percent Range | 0-49 | 50-52 | 53-56 | 57-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85-89 | 90-94 | 95-100 |
| Points | 0.00 | 1.00 | 1.30 | 1.70 | 2.00 | 2.30 | 2.70 | 3.00 | 3.30 | 3.70 | 4.00 | 4.0 |

Students must successfully pass or complete the lecture portion of the course with a 60% (C), and the lab portion with a 70% (B-). A mark in the lecture portion of 50-59% is recorded as a 'D'. A mark of 50-69% in the lab portion is recorded as a 'D'.

A grade of C (60%) in the lecture portion of this course, and a B- (70%) in the lab portion of this course is required to progress to VS206 Animal Care and Nursing IV.

Attendance

Classroom and laboratory attendance is considered vital to the learning process and as significant to the students' evaluation as examinations and reports, therefore absenteeism is recorded.

- a. Students having a combination of excused and/or unexcused absence of 20 percent or higher for the scheduled course hours can be required to withdraw and would then automatically receive a "RW" (required withdrawal) for the course, regardless of any other evaluation results. (RW is a failing grade).
- b. An excused absence is one that is verified with your instructor. Verification should be prior to the absence or the next class day following the absence. Verification of the absence may take the form of a note from your doctor/College nurse regarding illness, or a note from another instructor regarding a field trip or other activity, or authorization by your instructor following an in-person meeting. Be sure to contact your instructor and ask what they will require from you as verification for each absence. An unexcused absence is anything NOT verified by the instructor prior to the absence or the next class day following the absence.

NOTE: Any exceptions to the above attendance policy (e.g. timetable conflicts, work-related issues) must be approved in writing by the Department Chair prior to the beginning of the course.

It is the students' responsibility to know their own absentee record.

Normal hours are 8:30 a.m. to 6:30 p.m., with potential for evening courses, exams or extended field trips. Students are expected to be available for classes during these times.

Course Units/Topics

Lecture:

| | |
|-----|--|
| 1. | Properties of x-rays and equipment |
| 2. | Radiation safety |
| 3. | Steps to obtaining a radiograph |
| 4. | Small animal radiography and positioning |
| 5. | Digital radiography |
| 6. | Intraoral radiographic positioning |
| 7. | Radiograph evaluation |
| 8. | Equine radiography |
| 9. | Special radiographic procedures |
| 10. | Quality control testing |
| 11. | Avian and exotic radiography |
| 12. | Alternative imaging |
| 13. | Formation of a technique chart |
| 14. | Film radiography |
| 15. | Hands free imaging |

Laboratory:

- X-ray machines
- Patient measuring
- Reading the technique chart
- X-ray logs
- Small animal positioning
- intraoral radiographs
- Equine positioning for images

- Special radiographic procedures
- Quality control testing
- Avian radiographs
- Ultrasound imaging



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