



Course Number and Title: VET 235 Diagnostic Imaging

Campus Location:

Georgetown

Effective Date:

2018-51

Prerequisite:

VET 221, VET 220, VET 210

Co-Requisites:

none

Course Credits and Hours:

3.00 credits

2.00 lecture hours/week

7.00 lab hours/week

Course Description:

This course provides theoretical and practical information needed to produce diagnostic radiographs on a wide variety of species, including dogs, cats, horses and exotics. Other topics include patient/staff safety, ultrasonography, contrast studies, and digital radiography. Clinical sessions provide the student hands-on experience with concepts learned during lecture.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:

Students are provided dosimetry badges.

Schedule Type:

Classroom Course

Disclaimer:

Student must have completed required rabies pre-exposure vaccination series or document proof of protective titer before taking this course. The cost of the series is the responsibility of the student and may not be covered by insurance.

Core Course Performance Objectives (CCPOs):

1. Describe the basic applications of medical radiology, including information provided by a diagnostic radiograph, production of x-rays by an x-ray machine, production of radiographs with cassette-screen film, and both automatic and manual film processing. (CCC 2, 6; PGC 2)
2. Produce diagnostic quality radiographs on a variety of species using proper equipment, restraint, positioning, and technique. (CCC 2, 6; PGC 2)
3. Describe other diagnostic imaging techniques used in veterinary medicine. (CCC 2, 3; PGC 1)
4. Implement and follow recommended radiologic safety measures. (CCC 2, 3, 6; PGC 1, 2)
5. Adhere to the professional behavior and ethical conduct as outlined in the Veterinary Technician Code of Ethics. (CCC 1, 3, 4; PGC 3)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Describe the basic applications of medical radiology, including information provided by a diagnostic radiograph, production of x-rays by an x-ray machine, production of radiographs with cassette-screen film, and both automatic and manual film processing.
 1. Discuss the basic principles involved with x-rays and their production.
 2. Discuss radiographic quality, including density, contrast, and detail and the factors influencing these.
 3. Compare and contrast the effects of changing peak kilovoltage (KVP) and milliamperage/seconds (MAS).
 4. Describe the anatomy of the cassette-screen film.
 5. Compare and contrast automatic and manual film processing.
 6. List the factors that affect quality of radiographs.
 7. Prepare and use technique charts.
 8. Identify common technical errors and artifacts, and explain how to prevent and correct them.
 9. Define *contrast media*, and provide examples.
 10. Perform diagnostic radiographs.
 11. Process diagnostic radiographs using manual and automatic processing.
2. Produce diagnostic quality radiographs on a variety of species using proper equipment, restraint, positioning, and technique.
 1. Describe the anatomy of the x-ray tube.
 2. Explain the components of the x-ray machine.
 3. Discuss the principles of accessory x-ray equipment and image receptors used in veterinary practice so that diagnostic radiographs are consistently produced.
 4. List and define proper directional terminology used in radiography.
 5. List basic guidelines for veterinary radiographic positioning and restraint.
 6. Take diagnostic radiographs on a variety of species.
 7. Care for and maintain equipment.
 8. Properly use both stationary and portable x-ray machines.
3. Describe other diagnostic imaging techniques used in veterinary medicine.
 1. Discuss the basic physics of ultrasound.
 2. Describe the basic functioning of the ultrasound machine.
 3. Discuss the concepts of image physics.
 4. Describe the concepts of the final image and artifacts.
 5. Differentiate between the sonographic appearance of anatomical features and artifacts.
 6. Compare direct radiography (DR) and computed radiography (CR) digital imaging.
 7. Prepare an animal for routine ultrasound.
4. Implement and follow recommended radiologic safety measures.
 1. Describe the effects that could occur if proper radiation safety is not practiced.
 2. List the units of radiation.
 3. List practical methods that can be employed to reduce radiation exposure.
 4. Adhere to safety guidelines to minimize exposure risk by wearing a lead apron, gloves, and a thyroid shield at all times.
5. Adhere to the professional behavior and ethical conduct as outlined in the Veterinary Technician Code of Ethics.
 1. Work effectively in groups of people from diverse backgrounds and beliefs.
 2. Demonstrate ethical and professional conduct.

Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Apply theoretical information that leads to appropriate action in the application or delivery of veterinary nursing procedures.
2. Competently perform a full range of veterinary nursing procedures used in small and large animal medicine.
3. Practice behaviors that are consistent with the Veterinary Technology Code of Ethics and employer expectations/requirements.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.