

Business Name: Radiation Safety on Demand

Website: www.certificates-on-demand.com 2024

Course: Radiation Safety and Training 8-hour Certificate Course for the State of Oregon (Oregon State Authority and OVMB approved); for CVT's, this course offers 8 hours of CEU's state approved.

Instructor Bio: Tricia K. Elliott, MS, CVT, RVT, Certified Radiology Safety Instructor, Vendor License# 9550458 (Owner of business)

*Registered/ Certified Veterinary Technologist for over 25 years -small animal, exotic and surgical specialty practice

*Master's degree in Animal /Veterinary Science and Agricultural Science

*Veterinary Technology Instructor for over 13 years at both 2- and 4-year institutions (private and public)

*Natural Science Instructor at Oregon Institute of Technology (Anatomy/Physiology, Chemistry, Parasitology)

*Former wildlife biological technician for the USFS (studied Northern Spotted Owls and birds of prey)

Instructor Contact Information: Phone-714-271-6042; Email-elliott.tricia@gmail.com

Class Instruction/Requirements: This course is instructed in a virtual classroom with myself as the instructor; students will need to have access to a webcam to attend the course. The course can be taken at home or in the hospital/clinic in an undisturbed area. The final exam must be completed within two weeks of the course and **must** be taken at the hospital. Course materials (including syllabus, all lecture notes (power points), final exam/answer sheet) will be mailed to the students one week prior to the course.

Course Description: Introduces x-radiation and safety principles involved in using x-ray machines. The course will meet the State of Oregon requirements for certification to work with x-ray equipment in a veterinary hospital or clinic setting.

Course Price/ Details: \$295.00/ person; Payments accepted: PayPal, check, and cash

This includes all the course materials: Course syllabus, all lecture notes (power points), final exam/answer sheet, postage fees, and state certificate.

Price includes: Personal folder with all course material-lecture power points, etc.

***~8-hour course (1 day) of virtual instruction** by approved trainer, including:

- Lecture power points/ handouts printed out
- Study session/ exam review questions for final exam
- Final exam with completion certificate (no expiration) if successfully passed
- Exam retakes included in price/ retake until passing grade
- Veterinary specific information will be covered and discussed

Course Objectives:

- Identify the parts of the x-ray machine and explain their purpose and function
- Explain how x-rays are produced and how they travel
- Demonstrate use of the controls on an x-ray machine and explain how they influence the x-ray beam

- Compare the effects that x-radiation has on a variety of biological and non-biological materials
- Describe and follow the methods employed in hospitals and clinics to protect employees and physicians against radiation exposure
- Follow methods used to develop x-ray films
- Radiographic principles, safety, radiation protection, and film processing
- Digital and computed radiography processing

Outcome Assessment/ Completion Certificate:

To receive a passing grade and completion certificate, the students must have attended the entire course and passed a final written exam with 70% or higher. Certificates have no expiration date.

Course Content:

A. Parts of the X-Ray Machine

- ✓ List and describe the function of each of the following parts of the x-ray machine

B. Physical Principles of Radiography

- ✓ Basic knowledge about the physics of x-rays and how they are produced
- ✓ Describe the spectrum of electromagnetic radiation
- ✓ List the following parts of an x-ray tube
- ✓ Discuss the difference between a rotating anode and a fixed anode
- ✓ Discuss the principles by which x-rays are produced

C. Factors affecting the X-ray Beam

- ✓ Basic understanding of the controls on an x-ray machine and how they influence the x-ray beam
- ✓ List variable controls that directly influence the x-ray beam
- ✓ Describe and define the effects of kV, mA, time, distance on the x-ray beam/ Discuss the heel effect

D. The Interaction of X-Radiation with Matter

- ✓ Describe the methods by which x-rays interact with matter
- ✓ Describe the methods that are used to decrease the number of x-rays that enter the body during diagnostic x-ray procedures
- ✓ Describe what a screen is and where they are located
- ✓ Discuss the reasons that cassettes and screens are used in diagnostic radiography
- ✓ List the different types of screens and the relative speeds of each
- ✓ Describe which of the interactions of x-rays with matter may result in biological damage
- ✓ List the various types of tissues in order of decreasing sensitivity which are affected by ionizing radiation
- ✓ List and describe the units of measure of radiation
- ✓ List the lethal dose indices for radiation

- ✓ Maximum Permissible Dose
- ✓ Describe the effects of ionizing radiation on the body
- ✓ Discuss the reasoning for aluminum filtration to be added to the x-ray machine

E. Radiation Safety Principles

- ✓ Basic knowledge of the methods employed in veterinary hospitals and clinics to protect employees and the veterinarians themselves against radiation exposure
- ✓ Discuss the principle factors in reducing radiation exposure to personnel
- ✓ Discuss distance in relation to reducing exposure
- ✓ Discuss collimation in relation to reducing exposure
- ✓ Discuss the methods to hold animals in relation to reducing exposure
- ✓ Describe the protective attire worn by personnel to reduce exposure
- ✓ Discuss the State Radiation Protection rules
- ✓ Discuss personnel monitoring devices
- ✓ Discuss methods used to restrain animals without the aid of human assistance
- ✓ Explain scattered radiation and list the various causes
- ✓ Describe the methods used to diminish scattered radiation

F. X-Ray Developing (Film and Digital)

- ✓ Understand the principles and methods used to develop x-ray films
- ✓ Discuss the principles by which x-ray films are developed/Discuss the steps used to develop x-ray films using hand tanks
- ✓ Discuss loading and unloading cassettes/Discuss proper dark room procedures
- ✓ Demonstrate the method in which a film is attached to a film holder
- ✓ Discuss the principles in which films are developed in an automatic processor
- ✓ Demonstrate the method in which to run a film through an automatic processor
- ✓ Discuss the advantages and disadvantages of each method of developing film
- ✓ Discuss chemical storage and problems that can occur when working with developing chemicals
- ✓ Digital and Computed Radiography Processing

G. Quality Control and Record Keeping

- ✓ Develop an understanding of the tasks necessary to maintain equipment and keep accurate records of radiographs taken
- ✓ Define quality control/ Image critique/ Describe the tests employed to assure quality control/ Trouble-shooting radiology machine
- ✓ Be able to label, file, and store film properly; with manual and digital processing

References:

- ✓ On request (23)—Currently instructor has trained over 800 people in the state of Oregon