

Toepfer & Associates, PLLC
—CONSULTANTS—

Radiation Safety Officer

Medical & X-ray

Trusted Advisors | Global Experience for Hire

2026 Syllabus

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On the Side of Science



Course Description

This is a comprehensive 40-hour Radiation Safety Officer (RSO) training course designed to provide participants with the knowledge and skills necessary to effectively manage radiation safety programs at medical facilities, as well as facilities engaged in medical imaging and industrial radiography.

The course covers regulatory requirements, radiation physics, biological effects, ALARA principles, radiation detection and instrumentation, and program administration. This course is designed to meet the federal and state requirements for training as occupational radiation workers and designation as an RSO. Graduates to gain confidence in administering their own programs, thereby promoting the safe use and handling of radioisotopes common in the medical field as well as safe practices around radiation generating machines. Participants are expected to have a basic understanding of science or related technical experience and must attend all sessions to earn the RSO certification.

Upon successful completion, students will receive a certificate of training from Toepfer & Associates, PLLC.





Day 1



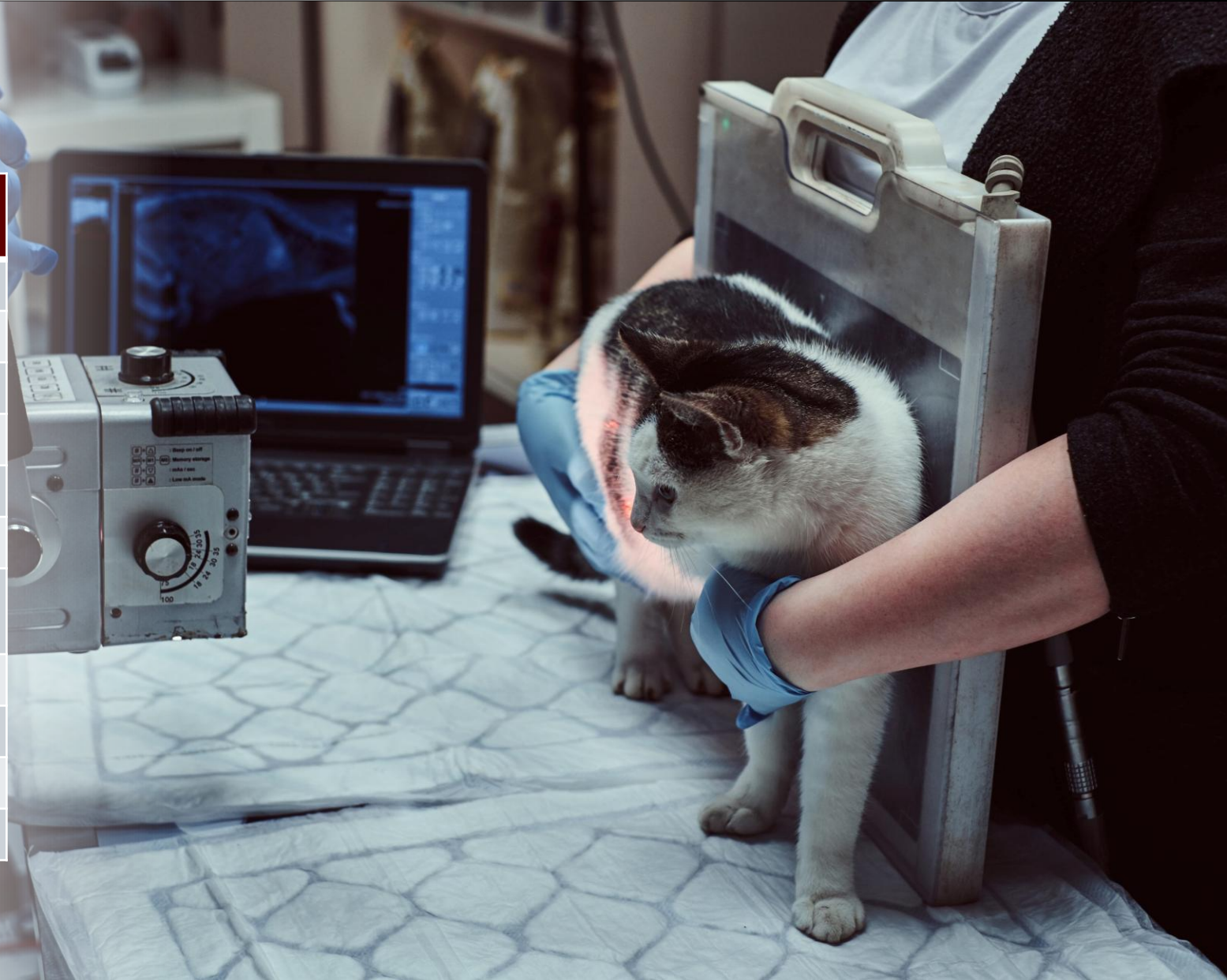
Hours Credit	Topic
0.5	Introduction, Course Overview
1.5	Role of the RSO, Radiation Awareness
1.5	Fundamentals of Ionizing Radiation <ul style="list-style-type: none">• Theory of Phenomenological Causes• Properties and Characteristics• Modes of Decay• Units of Measurement
0.5	Sources of Radiation
N/A	<i>Lunch Break</i>
1.5	X-Ray Production
2.0	Interactions with Matter
1.0	Biological Effects of Ionizing Radiation
0.5	Evening Recap





Day 2

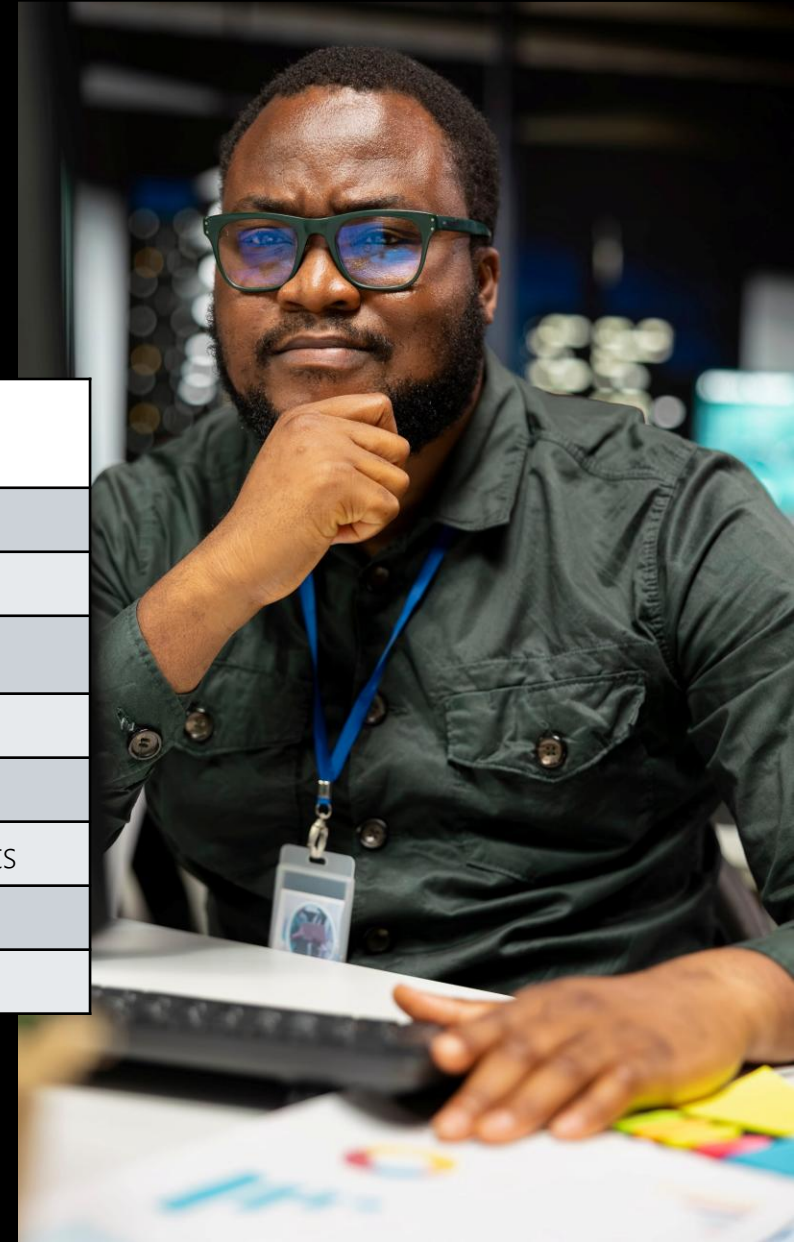
Hours Credit	Topic
0.5	Morning Review
1.0	Common Medical and Industrial Devices
1.0	X-rays and Principles of External Dosimetry
1.0	10 CFR 19 and 20, Common State Regs.
1.0	[Air] Kerma, Leakage, Scatter, and Absorption
N/A	<i>Lunch Break</i>
1.0	Internal Dosimetry for Common Medical Radioisotopes
1.0	Shielding Design, NCRP 147. Radiology HB
1.0	X-ray Safety
1.0	Emergency Response Planning
0.5	Evening Recap





Day 3

Hours Credit	Topic
0.5	Morning Review
1.5	Fundamentals of Radiation Detection
1.5	Radiation Detection Instruments
N/A	<i>Lunch Break</i>
1.5	Proper Surveying Techniques
1.5	Interpretation of Radiation Measurements
2.0	Instruments Lab
0.5	Evening Recap





Day 4

Hours Credit	Topic
0.5	Morning Review
2.0	Licensing
1.5	Training Programs
N/A	<i>Lunch Break</i>
1.5	Monitoring Programs <ul style="list-style-type: none">• Dosimetry• Bioassay• Contamination Control• Fit-for-Duty Testing
1.5	Audits
1.5	Recordkeeping
0.5	Evening Recap

Day 5

Hours Credit	Topic
0.5	Morning Review
2.0	Radiation Litigation
1.0	How to Survive Inspections
0.5	Very Important Things to Remember
N/A	<i>Certification Awards</i>

