



Medical Effects of Ionizing Radiation Course Armed Forces Radiobiology Research Institute

<https://afri.usuhs.edu/meir-course>



Day 1

Administrative Processing

Sign-in, receive handouts and TurningPoint

Introduction

Course overview, AFRRRI's research, capabilities, and product

Current Radiological Threats

Current radiological and nuclear threats to U.S. security

Radiation Physics

History, terminology, units, and radiation interactions

Radiation Biology

Mechanisms of damage and damage modifiers

Health Physics Equations

Instructor led practice performing basic calculations relating to radiation protection

Acute Radiation Syndrome

Effects of an acute, high dose radiation exposure to the whole body

Radiological/Nuclear Weapons And Effects

Radiation/nuclear weapons and their effects on a population

Biodosimetry

Methods for determining dose using biological markers

Radiation Squares Review Part 1

Team trivia competition covering the first day's lectures



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Day 2

Operational Management of Radiation Incidents

Decontamination methods, current regulations, operational planning, and recommendations for public health protection

Medical Management of Radiation Injury

ARS phases, diagnostics, and confounders for persons exposed to radiation

Late Effects of Ionizing Radiation

Delayed health effects from long-term, low-level, and chronic high-dose sub-lethal exposures of ionizing radiation

Radiation Detection Part 1 - Physical Dosimeters

Radiation detection theory, construction, operation, and hands-on practice

Radiation Detection Part 2 - Survey Meters

Radiation detection theory, construction, operation, and hands-on practice

Internal Contamination

Removal methods of internally deposited radioactive materials in the body

Radiation Squares Review Part 2

Team trivia competition covering the first day's lectures

Scenario Workshop

Propose solutions to real-world scenarios and utilize the information to advise on radiological triage and protection



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Day 3

Radiation Accidents Part 1

Historical incidences where people have been exposed to acute or chronic radiation

Radiation Accidents Part 2

Historical incidences where people have been exposed to acute or chronic radiation

Psychological Factors

Psychological reactions of populations exposed to a nuclear detonation, or real or perceived widespread contamination

Medical Uses of Radiation

Radiation generating devices and radioisotopes used in clinical settings

Final Exam (Multiple Choice)

Film and Open Discussion

CDC "Radiological Terrorism" Clinician's Training Film

Radiation Incident Response

Roles of the various agencies responding to a radiological incident

Scenario Presentations

Group presentations of solutions from the Scenario Workshop

DTRA Technical Reachback Overview

Capabilities of DTRA Technical Reachback and the RFI process

Modeling Applications

Presentation of nuclear detonation and radiological weapons modeling

Closing Comments & Test Review



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Instructor Credentials

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