



**Medical Effects of Ionizing Radiation
Scientific Course**
Bethesda, Maryland
28 July–1 August 2008



28 July 08 (Mon., day 1)		Min.	Instructors
0745–0800	Administrative processing	15	Staff
0800–0850	Welcome and Introduction Discuss the radiological program of the Armed Forces Radiobiology Research Institute (AFRRI); show “Radiological Terrorism,” a training film for clinicians; and provide a brief MEIR course overview.	50	Col L. Andrew Huff, AFRRI; and a film from Centers for Disease Control and Prevention (CDC)
0850–0900	Break	10	
0900–0950	Worldwide Nuclear/Radiological Threat Assessment Discuss the radiation/nuclear terrorist threat and the roles of NORTHCOM and JTF-CS in disaster response. Discuss the collaboration of CCMRF, the MRAT , RAMT , and AFRAT.	50	Dr. Jeff Timby, Surgeon, Joint Task Force Civil Support
0950–1000	Break	10	
1000–1050	Hematopoiesis in the Context of Radiation Countermeasures Discuss how the biology of hematopoiesis affects strategies for radiation countermeasure development.	50	Dr. Mark Whitnall, AFRRI
1100–1300	Lunch	120	
1300–1350	Nuclear Weapons Effects Explain the effects and hazards of the blast, thermal energy, and fallout characteristics released from a nuclear detonation.	50	COL John Mercier, AFRRI
1350–1400	Break	10	
1400–1450	Radiation Epidemiology	50	Dr. John Boice, Professor of Medicine, Vanderbilt University
1450–1500	Break		
1500–1600	Atomic-Bomb Survivor Follow-Up Discuss the design of the cohorts and the results obtained from the long-term follow-up of the survivors of Hiroshima and Nagasaki by the ABCC/RERF .	50	Dr. Evan Douple, Associate Chief of Research, Radiation Effects Research Foundation (RERF)



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29 July 08 (Tues., day 2)		Min.	Instructors
0800–0850	Acute Hematopoietic Syndrome Treatment Explore the best treatment protocol currently available for acute radiation syndrome (ARS). Discuss early administration of recombinant myeloid growth factors (cytokines) and aggressive supportive care. Discuss the FDA's "animal efficacy rule" for approval of modern therapies.	50	Dr. Thomas MacVittie, University of Maryland
0850–0900	Break	10	
0900–0950	Hematopoiesis and the New GI Syndrome Rx	50	Dr. Thomas MacVittie
0950–1000	Break	10	
1000–1050	Late Effects of Ionizing Radiation Explain the long-term health effects following exposure to low-level chronic and high-dose acute sub-lethal ionizing radiation.	50	Dr. Evan Douple, Associate Chief of Research, Radiation Effects Research Foundation (RERF)
1100–1300	Lunch	120	
1300–1350	Radiation-Induced DNA Damage: From Molecules to Humans	50	Dr. Betsy Sutherland, Senior Scientist, Brookhaven National Laboratory
1350–1400	Break	10	
1400–1450	Radiation Dispersal Devices Discuss dispersal characteristics and limitations.	50	Dr. Frederick Harper, Senior Scientist at Sandia National Laboratories , Integrated Military Systems Development Center
1450–1500	Break	10	
1500–1600	EPR/OSL Dosimetry	50	Dr. Alex Romanyukha, Technical Manager, U.S. Naval Dosimetry Center , Assistant Professor of Radiology and Preventative Medicine & Biometrics, USUHS



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30 July 08 (Wed., day 3)		Min.	Instructors
0800–0850	Triage and Pre-Hospital Care Discuss pre-hospital care in the initial management of radiation accidents/incidents and identify possible limitations/hazards to emergency response personnel.	50	Dr. Albert Wiley, Director, REAC/TS & WHO Collaborating Center (REMPAN), Oak Ridge VP Radiation Emergency Medicine, Oak Ridge Associated Universities (ORAU)
0850–0900	Break	10	
0900–0950	Psychological Effects of Disaster/Radiation	50	Dr. Derrick Hamaoka
0950–1000	Break	10	
1000–1050	Radiation Accidents	50	Dr. Albert Wiley, REMPAN/ORAU
1100–1300	Lunch	120	
1300–1350	Radiation Injuries after the Chernobyl Accident Provide an overview of acute and chronic radiation injuries caused by the Chernobyl accident and organizational challenges resulting from this event.	50	Dr. Alla Shapiro, Medical Officer, Office of Counter- Terrorism & Emergency Coordination, Center for Drug Evaluation & Research (CDER), U.S. Food & Drug Administration
1350–1400	Break	10	
1400–1450	Population Monitoring—Practical Considerations Provide an overview of the population monitoring process and challenges in the context of a mass casualty incident and offers a number of practical considerations to meet those challenges.	50	Dr. Armin Ansari, U.S. Centers for Disease Control
1450–1500	Break	10	
1500–1600	GI Symptoms, Syndromes and Treatment	50	Dr. Gregory King, AFRRI



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31 July 08 (Thurs., day 4)		Min.	Instructors
0800–0850	Cellular Effects and Cytogenetics and Automation Describe efforts to develop current gold-standard chromosome aberration radiation dose assessment method for mass casualty applications.	50	Dr. Pataje Prasanna, AFRRRI
0850–0900	Break	10	
0900–0950	Medical Effects of Ionizing Radiation: Wanted and Unwanted Compare some of the medical effects of ionizing radiation in radiation oncology with effects seen after a radiologic/nuclear event.	50	Dr. Bill Dickerson, AFRRRI
0950–1000	Break	10	
1000–1050	Medical Effects from Nuclear Weapons Discuss the medical effects of nuclear weapons testing at the Mayak and Semipalatinsk sites.	50	Col Mark Smyczynski, AFRRRI
1100–1300	Lunch	120	
1300–1350	Tour of the AFRRRI Reactor Discuss and explore the AFRRRI reactor’s abilities and see firsthand how it benefits research.	50	Mr. Harry Spence, AFRRRI
1350–1400	Break	10	
1400–1450	Tour of the AFRRRI Cobalt Facility	50	Mr. Melendez-Cruz, AFRRRI
1450–1500	Break	10	
1500–1600	Tour of the AFRRRI Veterinary Sciences Department	50	LTC Joseph Harre, AFRRRI



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1 August 08 (Fri., day 5)		Min.	Instructors
0800–0850	Development of Genistein as a Radioprotectant Agent Discuss the discovery and development of a radiation countermeasure.	50	Dr. Michael Landauer, AFRI
0850–0900	Break	10	
0900–0950	Molecular Responses to Radiation Discuss tools that will distinguish between general biological stress and life-threatening doses of ionizing radiation. Discuss the effects of IR on the expression of genetic pathways. Clarify the molecular mechanism of radioprotection and understand biological dosimetry.	50	Dr. Marcy Grace, Biomedical Advanced Research & Development Authority (BARDA)
0950–1000	Break	10	
1000–1050	NCRP Update on Internal Contamination Discuss the Wound Model and its uncertainties for internal dose estimates.	50	Dr. Richard Toohey, Director, Dose Reconstruction Programs, NIOSH
1100–1300	Lunch	120	
1300–1350	Cytokines as Biomarkers for Radiation Countermeasures Discuss how to identify various cytokines as biomarkers for radiation countermeasures.	50	Dr. Vijay Singh, AFRI
1350–1400	Break	10	
1400–1450	Protective Action Guides Review the existing Protective Action Guides published in 1992 and discuss updates and improvements in the proposed draft revision coming out for public comment later this year.	50	Sara D. DeCair, U.S. Environmental Protection Agency
1450–1500	Break	10	
1500–1550	Course Summation and Critiques	30	Col L. Andrew Huff, AFRI