

RADI 5001
Basic Radiation Safety (Lecture)

Fall 2019

CLASS DAYS and TIME: Tuesdays Noon – 12:50 pm

CLASSROOM: Academic Learning & Teaching Center (ALTC) Room 213

COURSE FACULTY: Michael A. Charlton, Ph.D., CHP, LMP, CIH, CSP, CHMM

OFFICE LOCATION and HOURS: Dental School Building Room 1.343T, Friday 8:30-9:30 am

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READ THIS DOCUMENT CAREFULLY - YOU ARE RESPONSIBLE FOR ITS CONTENTS.

COURSE DESCRIPTION AND OBJECTIVES

This course provides the student with the opportunity to gain a conceptual understanding of the radiation protection principles involved in the research, diagnostic, and therapeutic uses of radiation sources. This course will cover the safe receipt, use, storage, and disposal of radiation sources in the biomedical research setting. The contents of this course fulfill HSC training requirements in order to use radioactive materials on campus. Successful participants will earn three HSC safety certificates of completion: Basic Radiation Safety Training, Basic Laser Safety Training, and Basic Laboratory Safety Training.

Pre-requisites – None

Semester credit hours – 1 credit hour

By the end of this course, each student should be able to:

- To anticipate, recognize, evaluate, and control ionizing radiation hazards in an occupational setting. .
- To understand the fundamental safety principles required for the safe use of ionizing radiation.
- To review the primary regulatory structure and regulatory agencies involved in the governance of ionizing radiation use.
- To apply health physics safety principles to common biomedical research, diagnostic physics, and therapy physics applications.

COURSE ORGANIZATION

The main teaching modalities used in this course include:

- 1) Case studies are used anticipate and evaluate current medical health physics issues
- 2) Didactic lectures are used to review the regulatory structure and historical governance of ionizing radiation

Materials – Handouts, literature, and reference materials will be provided

Computer Access – Standard UTHSCSA computer access is required for this graduate course. These may include, but are not limited to literature review, statistical programs, search engines, Radiation Safety Procedure Manual, Chemical Safety Manual, and other manufacturer's operating instructions.

Reading Assignments – Course readings will be assigned each week from the applicable health physics references prior to each case study and lecture.

ATTENDANCE

Lecture and case study attendance is mandatory. Students are required for all course materials in the event of an absence. All absences must be submitted to the teaching faculty prior to the scheduled class meeting date. 24-hours' notice is required except in the case of emergency situations.

TEXTBOOKS

Recommended: *Health Physics Journal*, selected readings. *Operational Health Physics*, Supplement to *Health Physics*, selected readings.

GRADING POLICIES AND EXAMINATION PROCEDURES

Describe in detail how grades for assignments/projects/tests will be weighted and factored into final grades, also include other information relevant to grading if applicable – for example information about extra credit, examination protocol, make-up exams, etc.

Grading System

45% Midterm
45% Final Exam
10% Active Participation

Satisfactory >70% Unsatisfactory <70%

REQUESTS FOR ACCOMODATIONS FOR DISABILITIES

In accordance with policy 4.2.3, **Request for Accommodation Under the ADA and the ADA Amendments Act of 2008 (ADAAA)**, any student requesting accommodation must submit the appropriate request for accommodation under the American with Disabilities Act (ADA, form 100). to his/her appropriate Associate Dean of their School and a copy to the ADA Coordinator. Additional information may be obtained at <http://uthscsa.edu/eeo/request.asp>.

ACADEMIC INTEGRITY AND PROFESSIONALISM

Any student who commits an act of academic dishonesty is subject to discipline as prescribed by the UT System Rules and Regulations of the Board of Regents. Academic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an exam for another person, signing attendance sheets for another student, and any act designed to give unfair advantage to a student or the attempt to commit such an act. Additional information may be obtained at <http://catalog.uthscsa.edu/generalinformation/generalacademicpolicies/academicdishonestypolicy/>

TITLE IX AT UTHSCSA

Title IX Defined:

Title of the Education Amendments of 1972 is a federal law that prohibits sex discrimination in education. It reads “no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance.”

University of Texas Health Science Center San Antonio’s Commitment:

University of Texas Health Science Center San Antonio (UTHSCSA) is committed to maintaining a learning environment that is free from discriminatory conduct based on gender. As required by Title IX, UTHSCSA does not discriminate on the basis of sex in its education programs and activities, and it encourages any student, faculty, or staff member who thinks that he or she has been subjected to sex discrimination, sexual harassment (including sexual violence) or sexual misconduct to immediately report the incident to the Title IX Director.

In an emergency, victims of sexual abuse should call 911. For non-emergencies, they may contact UPD at 210-567-2800. Additional information may be obtained at <http://students.uthscsa.edu/titleix/>

EMAIL POLICY

The use of email is encouraged to increase information exchange and to ask routine questions.

USE OF RECORDING DEVICES

The use of recording devices is at the discretion of the faculty. Check with the faculty member prior to recording their cases or lectures. No patient identifiers may be recorded or duplicated. A photo release may be required for any patient-related images.

ELECTRONIC DEVICES

Electronic devices and technology is strongly encouraged to increase student awareness of current trends in medical physics. These media may include medical devices, medical records, dose measuring devices, computing devices, and learning management systems.

TENTATIVE CLASS SCHEDULE
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WEEK	DATE	TOPIC	Assignment	Instructor and Modality
Week 1	8/20	Course Introduction, Syllabus Review, Instructors	17 th Edition Chart of the Nuclides, Knoll Atomic Power Laboratory. Baum et.al 2010.	Charlton
Week 2	8/27	Natural Sources of Radiation, Common Uses, Human Use of Radiation		Charlton
Week 3	9/3	Review of Basic Units & Terminology		Charlton
Week 4	9/10	Radioactive Decay Fundamentals	17 th Edition Chart of the Nuclides, Knoll Atomic Power Laboratory. Baum et.al 2010.	Charlton
Week 5	9/17	Biological Effects of Radiation		Charlton
Week 6	9/24	Regulatory Dose Limits	10 CFR Part 20, individual dose limits for radiation	Charlton
Week 7	10/1	Radiation Protection Program Management	Prepare for Examination on 10/8	Charlton
Week 8	10/8	Midterm Examination		Charlton
Week 9	10/15	Radiation Detection & Measurement		Charlton
Week 10	10/22	Liquid Scintillation Counting Fundamentals		Charlton
Week 11	10/29	Emergency Response/Spill Procedures & Security of Radioactive Materials	Spill Procedure Handout	Charlton
Week 12	11/5	Performing Radiation Safety Surveys		Charlton
Week 13	11/12	Prudent Radioactive Waste Disposal		Charlton

Week 14	11/27	Basic Laboratory Safety/Hazardous Waste	Prepare for Examination on 12/3	Charlton
		Basic Laser Safety Training		
Week 15	11/27	Thanksgiving Holiday	No Course Meeting	Charlton
Week 16	12/3	Course Review & Final Exam		Charlton