RADI 6023
Clinical Medical Physics
Fall 2016

CLASS DAYS and TIME: Monday – Wednesday 2:00 – 4:00 p.m.

CLASSROOM: CTRC Building – Radiation Oncology Clinic

COURSE FACULTY: Niko Papanikolaou, Ph.D., Geoffrey Clarke, PhD., Sotirios Stathakis, PhD.,
Alonso Gutierrez, Ph.D., M.B.A., Neil Kirby, Ph.D; Karl Rasmussen, Ph.D.

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

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COURSE DESCRIPTION AND OBJECTIVES

The first clinical rotation is designed to give an introduction and an overview of all the clinical processes and the basic safety training. In detail the student will cover the following topics: employee orientation, radiation oncology orientation, HIPAA training, introduction to radiation protection, introduction to nursing and introduction to simulation, introduction to LINACs, LINAC QA and warm up, monitor unit calculations, electronic medical records orientation, regulations and professional recommendations.

Pre-requisites – None

Semester credit hours – 2

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

- Understand the roles of various health care providers in Radiation Oncology and Radiology.
- Describe the goals of radiation therapy, basic concepts of radiobiology in relation to cancer treatment and planning and delivering of ionizing radiation treatments.
- Understand the various types of imaging studies undertaken and observe a variety of procedures being performed.
- Understand basic safety and ethical issues in clinical medicine and the professional conduct of the medical physicist.

COURSE ORGANIZATION

The student is assigned a mentor from the medical physics staff and performs clinical tasks under the mentor's direct supervision. A rotation is considered complete when all rotation assessments have been signed off by the mentor and student.

Materials – See below

Computer Access – Many of the presentations are given in the common lecture format and are accompanied by Pdf converted PowerPoint slide files. You are responsible for all information included in the lecture materials. However, you should not assume that all testable lecture material is found only in the posted materials. That is, lectures may be expanded and enhanced during in-class presentations. So, take good notes because any information discussed in class is considered testable.

Reading Assignments – Required reading assignments are assigned throughout the rotations. Unless specifically noted by the instructor, anything in the required readings, whether emphasized in class or not, is considered testable on exams.

ATTENDANCE

In order to achieve the expected level of competency, students must be fully engaged. Therefore, attendance for every class session is expected. It is recognized that a student may occasionally arrive late to class due to unexpected traffic problems or inclement weather. However, chronic lateness is considered an unprofessional behavior that disrupts the learning environment for everyone else in the classroom.

TEXTBOOKS

Required: Code of Ethics for the American Association of Physicists in Medicine: Report of AAPM Task Group 109

GRADING POLICIES AND EXAMINATION PROCEDURES

Testable material comes from 3 main sources: Lecture presentation, reading assignments and in class discussion. Final letter grades will be based on a midterm and final exam. Each exam will be equally weighted (50%).

Late Arrival to Exams: Exams will be timed. If you arrive late to an exam, and are given permission to take the exam, you will not be given additional time to complete your test. If you arrive after another student has finished the exam and has departed the exam room, you will not be allowed to take the exam. If you miss an exam, you may be eligible for taking a make-up exam.

Make-up Examinations: A student who must miss a scheduled exam for a serious reason must request an excused absence from the Course Director. Acceptable "serious reasons" usually involve serious illness or injury to the student (doctor's excuse may be required) or the student's family member. Examples of unacceptable reasons include: Not prepared or incomplete studying, over-sleeping, hangover, heavy traffic or any travel delays, other appointments or scheduled professional or personal commitments.
If it is determined that missing an exam is justified, a make-up examination will be scheduled. The make-up exam will be given as soon as possible at a time designated by the Course Director. Any student who misses an exam and does not receive an excused absence **will receive a grade of zero for that exam**.

Grading System

Include a grading scale used to determine final grades, see example below

A = 90-100%   B = 80-89%   C = 70-79%   F = < 69%

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

Every student is issued a University e-mail address and account at the time of enrollment. As a matter of University Policy, communications between students and faculty that occur using the student's University e-mail address is considered official business. Therefore, students are expected to check their university email inboxes on a regular basis so that any announcements, instructions, or information regarding this course will be received in a timely way. Missed communications due to inadequate monitoring of incoming emails on the University's email server will never be a valid excuse for unsatisfactory academic progress.

USE OF RECORDING DEVICES

Recording of lectures and other learning activities in this course by any means (*e.g.*, video, audio, etc.) is only permitted if approved by the instructor or required for compliance with Americans with Disabilities Act (ADA).

ELECTRONIC DEVICES

Cell phones must be turned off during all class meetings and exams. Computers and electronic tablets are allowed only for participating in classroom activities (*e.g.*, viewing slides presented in lecture or conference materials). No texting,

tweeting, emailing, web-surfing, gaming, or any use of electronic devices that is not directly connected with classroom activities is permitted.

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	Competency	Tasks	Instructor	Grade
1	Dosimetry system	• Handling of ionization chambers and electrometers • Connections and cables • Thermometer/Barometer reading • Operation of electrometers		
2	Morning Linac QA	• Turn on linear accelerator • Follow warm up procedures • Perform complete morning QA • Record morning qa values		
3	HDR Morning QA	• Turn on the HDR unit and Treatment planning station • Perform independently the HDR morning QA		
4	CT Morning QA	• Perform independently the CT morning QA • Turn on CT • Perform complete morning QA • Record morning qa values		
5	OSLD in-vivo system	• Use the system independently • Familiarize with the software and GUI • Perform measurements of OSLDs • Anneal the OSLDs • Calibrate OSLDs		
6	PTW StarCheck	• Use the system independently • Familiarize with the software and GUI • Perform Monthly QA • Perform Reference Measurements		
7	Film Processor	• Turn on the system • Warm up the processor • Prepare processor chemistry solutions		
8	IBA MatriXX	• Use the system independently • Familiarize with the software and GUI • Perform IMRT field measurements		
9	Sun Nuclear DailyQA3 Device	• Use the system independently • Familiarize with the software and GUI • Perform Morning QA measurements		
10	RIT Winston-Lutz	• Use the system independently • Familiarize with the software and GUI • Perform W-L measurements using EPID or film images		
11	RIT Monthly Linac QA	• Use the system independently • Familiarize with the software and GUI • Perform Monthly QA measurements (PicketFence)		
12	PipsPro	• Use the system independently • Familiarize with the software and GUI • Perform Monthly QA measurements (EPID, CBCT, kV images))		
13	Linac Operations	• Familiarize with the linac control console • Competent operating vault 1 • Competency in operating vaults 3, 5, 6, and 8		

14	IMRT QA	• Use the system independently • Familiarize with the software and GUI (Scandidos Delta4) • Setup of phantom • Connections to the linac and PC • Perform measurements • Perform Analysis		
15	EPID based IMRT QA (optional)	• Perform EPID measurements of IMRT step and Shoot plans • Perform EPID measurements of VMAT plans • Export images from MOSAIQ • Process images • Import images to Pinnacle and Calculate • Generate report		