

2013-2014 Syllabus
Physics of Radiation Therapy for Residents-Technology, Quality, and Safety

Time of Meeting: Thursdays from 7:30 – 8:30 AM

Room: Smilow Classroom LL 412

Textbook: *Physics of Radiation Therapy*, Faiz M. Khan

Date	Chapter	Instructor
11-Jul-13	<i>Introduction: Treatment Planning</i>	Kim
18-Jul-13	<i>Atomic and Nuclear Structure: The Atom</i>	Gignac
25-Jul-13	<i>Beam Production: Basic Physics of X-Ray Beam Production</i>	Gignac
01-Aug-13	<i>Beam Production: Generation of Beams</i>	Gignac
08-Aug-13	<i>Treatment Machines: Linacs</i>	Gignac
15-Aug-13	<i>Treatment Machines: Linac Collimation Systems and Other Teletherapy</i>	Gignac
22-Aug-13	<i>Radiation Interaction: Interactions of X-and Gamma-rays with Matter</i>	Carlson
29-Aug-13	<i>Radiation Interaction: Attenuation of Photon Beams</i>	Carlson
05-Sep-13	<i>Radiation Interaction: Interactions of Particulate Radiation</i>	Carlson
12-Sep-13	<i>Beam Quality & Dose: Monoenergetic / Polyenergetic Bremsstrahlung Beams</i>	Kamath
19-Sep-13	<i>Beam Quality & Dose: Dose Quantities and Units</i>	Kamath
26-Sep-13	<i>ASTRO Week</i>	
03-Oct-13	<i>Radiation Measurement & Calibration: Calculation of Dose</i>	Ahmad
10-Oct-13	<i>Radiation Measurement & Calibration: Dose Output Calibration</i>	Ahmad
17-Oct-13	<i>Radiation Measurement & Calibration: Clinical Dosimetry</i>	Ahmad
24-Oct-13	<i>Review</i>	
31-Oct-13	<i>Photon EBRT: Dosimetry Concepts (Part I)</i>	Lincoln
07-Nov-13	<i>Photon EBRT: Dosimetry Concepts (Part II)</i>	Lincoln
14-Nov-13	<i>Photon EBRT: System of Dose Calculations</i>	Lincoln
21-Nov-13	<i>Photon EBRT: Computerized Planning</i>	Liu
28-Nov-13	<i>Thanksgiving Week</i>	
05-Dec-13	<i>Photon EBRT: Computerized Treatment Planning Strategies</i>	Liu
12-Dec-13	<i>Photon EBRT: Surface Corrections and Heterogeneity Calculations</i>	Liu
19-Dec-13	<i>Photon EBRT: Adjoining Fields and Special Dosimetry Problems</i>	Liu
26-Dec-13	<i>Christmas Week</i>	
27-Dec-13	<i>Electron EBRT: Basic Characteristics</i>	Deng
02-Jan-14	<i>Electron EBRT: Treatment Planning</i>	Deng
09-Jan-14	<i>EBRT QA: Overview of QA in Radiation Therapy</i>	Deng
16-Jan-14	<i>EBRT QA: Linac and Imaging QA</i>	Deng
23-Jan-14	<i>EBRT Treatment Setup: Immobilization & Positioning</i>	Liu
30-Jan-14	<i>3DCRT: Concepts & Treatment Planning</i>	Chen
06-Feb-14	<i>3DCRT: Plan Evaluation & Comparison</i>	Chen
13-Feb-14	<i>IMRT: Concepts & Delivery Systems</i>	Chen
20-Feb-14	<i>IMRT: Dose Prescription & Inverse Planning</i>	Chen
27-Feb-14	<i>IMRT: QA</i>	Chen

06-Mar-14	<i>Special Procedure: Cranial SRS</i>	Bond
13-Mar-14	<i>Special Procedure: SBRT</i>	Bond
20-Mar-14	<i>Special Procedure: TBI & TSET</i>	Bond
27-Mar-14	<i>Brachy: Radioactivity, Decay, Radioactive Sources & Calibration</i>	Bond
03-Apr-14	<i>Brachy: Calculations of Dose Distributions</i>	Bond
10-Apr-14	<i>Brachy: Implantation Techniques</i>	Bond
17-Apr-14	<i>Brachy: Systems of Implant Dosimetry</i>	Bond
24-Apr-14	<i>Brachy: QA and Safety</i>	Bond
01-May-14	Radiopharmaceutical Physics	Bond
08-May-14	<i>Particle Therapy: Delivery, Planning & Biology</i>	Carlson
15-May-14	<i>RT Imaging: Radiography Fundamentals / Informatics</i>	Hodefi
22-May-14	<i>RT Imaging: CT and PET</i>	Hodefi
29-May-14	<i>RT Imaging: MRI and Ultrasound</i>	Hodefi
05-Jun-14	Radiation Safety and Shielding	Bohan
12-Jun-14	Radiation Incidents & Bioterrorism Response Training	Bohan