

**2014-2015 Syllabus as of July 2, 2014**

**Physics of Radiation Therapy for Resident Physicians**

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

**Room: Smilow Conference Room LL 504**

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

10-Jul-14	Introduction: Treatment Planning	Kim
17-Jul-14	Atomic and Nuclear Structure: The Atom	Gignac
24-Jul-14	Beam Production: Basic Physics of X-Ray Beam Production	Gignac
31-Jul-14	Beam Production: Generation of Beams	Gignac
7-Aug-14	Treatment Machines: Linacs	Gignac
14-Aug-14	Treatment Machines: Linac Collimation Systems and Other Teletherapy	Gignac
21-Aug-14	Radiation Interaction: Interactions of X-and Gamma-rays with Matter	Carlson
28-Aug-14	Radiation Interaction: Attenuation of Photon Beams	Carlson
4-Sep-14	Radiation Interaction: Interactions of Particulate Radiation	Carlson
11-Sep-14	Beam Quality & Dose: Monoenergetic / Polyenergetic Bremsstrahlung Beams	Kamath
18-Sep-14	ASTRO Week	
25-Sep-14	Beam Quality & Dose: Dose Quantities and Units	Kamath
2-Oct-14	Radiation Measurement & Calibration: Calculation of Dose	
9-Oct-14	Radiation Measurement & Calibration: Dose Output Calibration	
16-Oct-14	Radiation Measurement & Calibration: Clinical Dosimetry	
23-Oct-14	Review	
30-Oct-14	Photon EBRT: Dosimetry Concepts (Part I)	Lincoln
6-Nov-14	Photon EBRT: Dosimetry Concepts (Part II)	Lincoln
13-Nov-14	Photon EBRT: System of Dose Calculations	Lincoln
20-Nov-14	Photon EBRT: Computerized Planning	Liu
27-Nov-14	Thanksgiving Week	
4-Dec-14	Photon EBRT: Computerized Treatment Planning Strategies	Liu
11-Dec-14	Photon EBRT: Surface Corrections and Heterogeneity Calculations	Liu
18-Dec-14	Photon EBRT: Adjoining Fields and Special Dosimetry Problems	Liu
25-Dec-14	Christmas Week	
1-Jan-15	Electron EBRT: Basic Characteristics	Deng
8-Jan-15	Electron EBRT: Treatment Planning	Deng
15-Jan-15	EBRT QA: Overview of QA in Radiation Therapy	Deng
22-Jan-15	EBRT QA: Linac and Imaging QA	Deng
29-Jan-15	EBRT Treatment Setup: Immobilization & Positioning	Liu
5-Feb-15	3DCRT: Concepts & Treatment Planning	Chen
12-Feb-15	3DCRT: Plan Evaluation & Comparison	Chen
19-Feb-15	IMRT: Concepts & Delivery Systems	Chen
26-Feb-15	IMRT: Dose Prescription & Inverse Planning	Chen
5-Mar-15	IMRT: QA	Chen
12-Mar-15	Special Procedure: Cranial SRS	Bond
19-Mar-15	Special Procedure: SBRT	Bond
26-Mar-15	Special Procedure: TBI & TSET	Bond
2-Apr-15	Brachy: Radioactivity, Decay, Radioactive Sources & Calibration	Bond
9-Apr-15	Brachy: Calculations of Dose Distributions	Bond

16-Apr-15	Brachy: Implantation Techniques	Bond
23-Apr-15	Brachy: Systems of Implant Dosimetry	Bond
30-Apr-15	Brachy: QA and Safety	Bond
7-May-15	Radiopharmaceutical Physics	Bond
14-May-15	Particle Therapy: Delivery, Planning & Biology	Carlson
21-May-15	RT Imaging: Radiography Fundamentals / Informatics	Hodefi
28-May-15	RT Imaging: CT and PET	Hodefi
4-Jun-15	RT Imaging: MRI and Ultrasound	Hodefi
11-Jun-15	Radiation Safety and Shielding	Bohan
18-Jun-15	Radiation Incidents & Bioterrorism Response Training	Bohan
25-Jun-15	Review	

R. Nath