

**2015-2016 Syllabus as of August 28 2015**

**Physics of Radiation Therapy for Resident Physicians**

**Time of Meeting: Thursdays from 7:15 – 8:15 AM**

**Room: Smilow Conference Room LL 504**

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

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

7-Apr-16	Brachy: Radioactivity, Decay, Radioactive Sources & Calibration	Bond
14-Apr-16	Brachy: Calculations of Dose Distributions	Bond
21-Apr-16	Brachy: Implantation Techniques	Bond
28-Apr-16	Brachy: Systems of Implant Dosimetry	Bond
5-May-16	Brachy: QA and Safety	Bond
12-May-16	Radiopharmaceutical Physics	Bond
19-May-16	Particle Therapy: Delivery, Planning & Biology	Carlson
26-May-16	RT Imaging: Radiography Fundamentals / Informatics	Hodefi
2-Jun-16	RT Imaging: CT and PET	Hodefi
9-Jun-16	RT Imaging: MRI and Ultrasound	Hodefi
16-Jun-16	Radiation Safety and Shielding	Bohan
23-Jun-16	Radiation Incidents & Bioterrorism Response Training	Bohan

R. Nath August 28, 2015