Radiation and Cancer Biology Course

Mondays 4-5:30pm, 2 TRB (updated:20130201)

Keith Cengel and Gary Kao Course Directors

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	Lecture Number, Chapter(s)	Date	Lecture title	Instructor(s)
Unit 1: Cancer Biology and Assays	**1**	7-Jan	Molecular signaling, cancer biology and molecular techniques I: growth and differentiation	Cengel
	2	14-Jan	Molecular signaling, cancer biology and molecular techniques II: Cell division/Nuclear Regulation	Kao
	3	21-Jan	Mechanisms and assays for cellular cytotoxicity	Busch
	4	28-Jan	Tumor Microenvironment 1	Minn
	5	4-Feb	Tumor Microenvironment 2	Maity
	6	11-Feb	Clinical Applications of Cancer Biology and Assays	Cengel
Unit 2: Radiation Mechanisms	**7**	18-Feb	Basic radiation chemistry, target theory	Koch
	8	25-Feb	Effects of microenvironment on radiation response	Evans
	9	4-Mar	Radiobiologic effects of dose rate, fractionation and particle identity	Carabe-Fernandez
	10	11-Mar	Molecular mechanisms of DNA Damage/repair	Greenberg
	11	18-Mar	Chromosomes and chromatid damage	Kao
	12	28-Mar **(THURSDAY)**	Novel therapeutics and impact on radiation therapy	Ben-Josef
		7-May	**Mid-Term Exam**	
Unit 3: Radiaiton Damage To Tumor and Normal Tissues	**14**	1-Apr	Modeling cyto and tissue cytotoxicity: Cell survival curves, cell/tissue and normal/tumor kinetics and response	Tuttle
	15	8-Apr	Normal Tissue Radiation Responses	Cengel
	16	15-Apr	Chemotherapeutic agents and radiation therapy	Koumenis
	17	22-Apr	Hereditary effects of IR; Effects of IR on fetus and embryo	Kennedy
	18	29-Apr	Radiation-induced carcinogenesis;	Kennedy
	19	6-May	Clinical Applications Normal and Tumor Tissue Radioresponse	Freedman
Unit 4: Multimodality Therapy and Radiation Biology	**20**	20-May	Clinical Applications of Radiation Mechanisms	Freedman
	21	22-May **(WEDNESDAY)**	Radiation Modifiers for Cancer and Normal Tissues and Cell cycle dependence of cytotoxicity	Hahn
		TBD	Review Session*	Cengel/Kao
		TBD	Final Exam	

*Students will be asked to submit questins or concerns in advance so that the review session can be as productive as possible. A general overview of course material will also be given.