

Schedule for Basic Radiobiology 9 hp, HT 2023

Teaching activities marked in red are mandatory to attend

Week	Day	Date	Time	Teaching activity	Teacher	Room	Literature ¹
40	Thursday	05.10		Introduction to the course	EKL	Video lecture	
				<i>Preparatory lectures:</i> Overview of the physics and chemistry of radiation absorption Cell biology		Video lectures	1 Handouts
41	Monday	09.10	10:00-12:00	DNA strand breaks and chromosomal aberrations	EKL	MSF library	2
			13:00-16:00	<i>Tutoring and discussions preparatory lectures, DNA strandbreaks and chromosomal aberrations</i> Cell survival curves and models for radiation cell killing part I		MSF library Video lecture	3
Tuesday	10.10	09:00-10:00		Cell survival curves and models for radiation cell killing parts II & III – target theory models and repair models	EKL	MSF library	3
			10:00-12:00	<i>Tutoring and discussions cell survival curves and models for radiation cell killing</i> <i>Calculation exercises 1 handed out</i>	EKL	MSF library	
			13:00-15:00	Radiosensitivity and cell age in the mitotic cycle Repair of radiation damage part I: types of radiation damage	EKL	MSF library Video lecture	4 5
Wednesday	11.10	10:00-12:00		Repair of radiation damage parts II & III: the 5 R's and the dose-rate effect	EKL	MSF library	5
			13:00-15:00	<i>Tutoring and discussions</i>			
Thursday	12.10	10:00-12:00		Oxygen effect and reoxygenation	EKL	MSF library	6
			13:00-15:00	Linear energy transfer and relative biologic effectiveness <i>Active learning exercise 1</i>	EKL	MSF library	7
Friday	13.10	10:00-12:00		<i>Tutoring and discussions oxygen effect, LET and RBE</i>	EKL	MSF library	
42	Monday	16.10	10:00-12:00	Acute effects of total-body irradiation	ITD	MSF library	8
			14:00-16:00	Biological dosimetry. Effects of high doses	AW	Frescati	Handouts
			16:00-17:00	<i>Tour RB lab at SU</i>	AW	Frescati	
Tuesday	17.10	09:00-10:00		<i>Introduction to the computer exercise</i>	WH	MSF library	
			10:00-15:00	<i>Time for exercises</i> <i>Oral presentation of computer exercise (by group) when ready</i>	WH	Computer room	
Thursday	19.10	10:00-12:00		<i>Active learning exercise 2</i> Cancer biology Radiation carcinogenesis Radioprotectors	EKL	MSF library	Handouts 10 9

43	Monday	23.10	09:00-10:00	Hereditary effects of radiation	EKL	MSF library	11
			10:00-11:00	Effects of radiation on the embryo and foetus	EKL	MSF library	12
			11:00-12:00	Radiation cataractogenesis	EKL	MSF library	13
	Wednesday	25.10	10:00-12:00	Tutoring and discussions carcinogenesis and risk of second cancer	ITD	MSF library	
			13:00-16:00	<i>Calculation seminar</i>	WH	MSF library	
	Thursday	26.10	10:00-12:00	Models for risk of second cancer	ITD	MSF library	Handouts
Friday	27.10	09:00-11:00	<i>Active learning exercise 3</i>	EKL	MSF library		
		11:00-12:00	<i>Active learning exercise 4</i> <i>Tasks for presentation handed out</i>	EKL	MSF library		
44	Monday	30.10	13:00-16:00	Biostatistics - Distribution plots	C-BL	MSF library	Handouts
			16:00-16:30	Exercises and discussion	C-BL	MSF library	
	Wednesday	01.11	13:00-16:00	Biostatistics - Correlation and Regression	C-BL	MSF library	Handouts
			16:00-16:30	Exercises and discussion	C-BL	MSF library	
	Thursday	02.11	13:00-16:00	Biostatistics - ANOVA, Kaplan-Meier survival curves, Probability distributions	C-BL	MSF library	Handouts
			16:00-16:30	Exercises and discussion	C-BL	MSF library	
Monday	06.11	10:00-12:00	Seminar: Models for high-LET radiation	EKL	MSF library	Handouts	
		13:00-15:00	Nanodosimetry	ITD	MSF library	Handouts	
45	Wednesday	08.11	10:00-12:00	<i>Presentation of assigned tasks</i>	EKL	MSF library	
			13:00-15:00	Time for questions	EKL	MSF library	
Friday	10.11	10:00-15:00	EXAMINATION			Bo Nilsson lecture hall	

Teachers:

WH	Wille Häger, Stockholm University
C-BL	Chun-Biu Li, Stockholm University
EKL	Emely Kjellsson Lindblom, Stockholm University
ITD	Iuliana Toma-Dasu, Stockholm University
AW	Andrzej Wojcik, Stockholm University

Literature:

1. Eric Hall and Amato Giaccia: *Radiobiology for the Radiologist*, Lippincott Williams and Wilkins Sixth Ed 2006, Chapters 1-13