

## PHYSICS 539 COURSE OUTLINE: JAN-APR 2023

**EVALUATION:**        **Assignments 30%, Labs 20%, Midterm 20%, Final 30%**

**LOCATIONS:**

- Classes are offered online through Canvas
- Labs are conducted on-site at BC Cancer in Vancouver, Victoria and Kelowna

**SCHEDULE:**

- Lecture times are Mondays 14:30 - 16:00 and Fridays 10:30 - 12:00
- Lab dates and times may vary – see local organizer for details
- UBC/UVic/UBCO Spring break Feb 20-24

<b>Date</b>		<b>Material Covered</b>	<b>Instructor</b>
Mon 9 Jan	1	Intro to Course and Review	TP/CD
Fri 13 Jan	2	Fundamental Dosimetry Concepts	TP
Mon 16 Jan	3	Monte Carlo Simulations in Radiation Therapy (I) <a href="#">Monte Carlo code assignment – due April 7th</a>	TP
Fri 20 Jan	4	Monte Carlo Simulations in Radiation Therapy (II)	TP
Mon 23 Jan	5	Cavity Theory	TP
Fri 27 Jan	6	Cavity Ionization Chambers	TP
Mon 30 Jan	7	TG-51 Protocol for Clinical Reference Dosimetry	TP
Fri 3 Feb	8	TG-51 part II	TP
Mon Feb 6	9	Absolute dosimetry : free-in –air chamber, Calorimetry, Chemical Dosimetry, Radiation safety primer prior to first lab ; Intro to lab Privacy in the clinical environment, linac review	CD/PP
Week of Feb 6th		<a href="#">LAB 1: TG-51</a>	CD
Mon 13 Feb	10	Absolute Dosimetry continued.  Relative Dosimetry Techniques 1: Thermoluminescent/ Optically Simulated Luminescence Dosimetry,	CD
Week of Feb 13 <sup>th</sup>		<a href="#">LAB 2 OSLD/TLD Dosimetry</a>	CD
Fri 17 Feb	11	Review	CD

Mon 20 –Fri 24 Feb		Mid Term Break	
Mon 27 Feb		Midterm exam	TP/CD
Fri Mar 3th	12	Post Mid-Term Review	TP/CD
Mon 6 March	13	Relative Dosimetry Techniques 2 Film Dosimetry 2D dose maps (the Gamma index)  Diodes, MOSFETs, and EPIDs, Scintillation Dosimeters	CD
Week of March 6th		LAB 3: Film Dosimetry	CD
Mon 13 Mar	14	Special Problems in Radiation Dosimetry: Surface dose	CD
Fri March 17th		Special Problems in Radiation Dosimetry: Very Small Fields	EG
Mon 20 Mar	15	Proton Therapy Dosimetry	EG
Fri March 24 <sup>th</sup>	16	Proton and High LET Dosimetry	EG
Mon March 27th	17	Ortho-voltage X-ray Dosimetry, Source Calibration and Dosimetry of Brachytherapy	SL
Week of Mar 27th		LAB 4:Well Chamber	SL
Fri Mar 31	18	Radiation Protection Dosimetry	PP
Mon Apr 3 <sup>th</sup>		Course Review	all
Fri Apr 7 <sup>th</sup>		STAT HOLIDAY All assignments and labs report due	
April 17		Final Exam starts at 13:30 - virtual	TP/CD

TP = Dr. Tony Popescu, BC Cancer, Vancouver  
CD = Dr. Cheryl Duzenli, BC Cancer, Vancouver  
EG = Dr. Ermias Gete, BC Cancer, Vancouver  
PP = Dr. Peter Petric, BC Cancer, Vancouver  
SL = Dr. Samantha Lloyd, BC Cancer, Vancouver