

Schedule for the ground course on *Radiation Dosimetry*, FK5031, 7.5 ECTS, Spring 2026

Lecture room: MSF Library

Week	Day	Date	Time	Lecture title or other specified activity	Lecturer
7	Monday	09.02	12.30-13.00	Introduction	HB
			13:00-16:00	Lecture: Radiation field and dosimetric quantities	ML
	Tuesday	10.02	09:30-12:30	Lecture: Relation between field and dosimetric quantities. Radiation equilibria	HB
			13.30-16.30	Lecture: Cavity theory	HB
	Thursday	12.02	13.00-16.00	Calculation exercise: radiation field and dosimetric quantities	ML
	Friday	13.02	09:00-12:00	Lecture: Microdosimetry	MRE
			13:00-16:00	Lecture: Microdosimetry cont.	MRE
8	Monday	16.02	09:30-12:30	Calculation exercise: kerma, CEMA, cavity theory	HB
			13.30-16.30	Lecture: Ionization chambers	HB
	Wednesday	18.02	09:30-12:30	Lecture: Overview of radiation detection	HB
			13.30-16.30	Calculation exercise: ionization chamber dosimetry	HB
	Thursday	19.02	10:00-13:00	Lecture: Radiation metrology standards	HB
9	Monday	23.02	08:00-11:00	Lecture: TLD and EPR dosimetry	HB
	Tuesday	24.02	09.30-16.30	Scientific paper presentations	HB
	Thursday	26.02	09:30-12:30	Lecture: Proton and Neutron dosimetry	HB
			13.30-16.30	Calculation exercise: proton and neutron dosimetry	HB
10	Monday	02.03	16:00-18:00	Lab 1: Ionization chamber dosimetry Group 1 (NKS)	AA+MG
	Tuesday	03.03	16:00-18:00	Lab 2: Ionization chamber dosimetry Group 2 (NKS)	AA+MG
	Wednesday	04.03	08:00-12:00	Lab 3: Ionization chamber dosimetry Group 3 (NKS)	AA+MG
	Thursday	05.03	10:00-12:00	Introduction to PENELOPE and the MC lab exercise	TBD
			13.00-15.00	Lecture: Semiconductor dosimeters	AD
	Friday	06.03	09:00-16:00	Lab 2: Interface dosimetry MC calculations Groups 1-3	TBD
11	Friday	13.03	09:00-15:00	Exam	HB

Course coordinator and lecturer:

HB Hamza Benmakhlouf, Associate Professor, Stockholm University

Lecturers:

AD Alexandru Dasu, Professor, Uppsala University

ML Marta Lazzeroni, PhD, Senior Lecturer, Stockholm University

MRE Maite Romero-Expósito, PhD, Researcher, Skandion Clinic

Lab supervisors:

AA Alie Ameri, PhD student, Stockholm University

MG Mohammed Ghazal, PhD, Medical Physicist, Karolinska University Hospital

TBD TBD

Literature:

P. Andreo, D. T. Burns, A. E. Nahum, J. Seuntjens and F. H. Attix "Fundamentals of Ionizing Radiation Dosimetry", Wiley 2017

Bo Nilsson Exercises with Solutions in Radiation Physics, De Gruyter 2015

ICRU Reports 45, 85

Lecture notes and copied material

Consultation and further reading:

F. H. Attix Introduction to Radiological Physics and Radiation Dosimetry, Wiley 1986

ICRU Reports 35, 36, 64, 10b

J R Greening Fundamentals of Radiation Dosimetry Adam Hilger 1981

F. H. Attix, W. C. Roesch and E. Tochilin (eds) Radiation Dosimetry 2nd ed Vols 1-3 Academic Press 1969

Relevant dosimetry chapters in:

E Podgorsak (ed) Radiation Oncology Physics: a Handbook for teachers and students IAEA 2005

(http://www-pub.iaea.org/MTCD/publications/PDF/Pub1196_web.pdf)

P Mayles, A Nahum and J-C Rosenwald (eds) Handbook of Radiotherapy Physics - Theory and Practice Taylor & Francis 2007

DWO Rogers and J-E Cygler Clinical Dosimetry Measurements in Radiotherapy Medical Physics Publishing 2009

Relevant microdosimetry literature:

Lindborg L. and Nikjoo H: Microdosimetry and radiation quality determinations in radiation protection and radiation therapy in Radiat. Prot. Dosim (pages 402 to 404 until "Experimental techniques" as mandatory reading for the Microdosimetry lecture, the rest of the paper for information)

Chapter 1 + 2 in "Microdosimetry - Experimental Methods and Applications" by Lennardt Lindborg and Anthony Walker,

CRC Press, ISBN 978-1-4822-1740-7. (will be handed out)