

|| ENU 6636
Medical Radiation Protection and Shielding

Course Syllabus Spring 2020

Instructors: Stephanie Leon, PhD (leons@radiology.ufl.edu)
 Manuel Arreola, PhD (arreom@radiology.ufl.edu)

Textbooks: *Required*

1. National Council on Radiation Protection, Report Number 151, Structural Shielding Design and Evaluation for X- and Gamma-Ray Radiotherapy Facilities, 2005 ISBN 0-929600-87-8
2. National Council on Radiation Protection, Report Number 147, Structural Shielding Design for Medical X-Ray Imaging Facilities, 2004 ISBN 0-929600-83-5

Recommended

1. Faw and Shultis, Radiological Assessment: Sources and Doses, American Nuclear Society, 1999. ISBN 0-89448-455-9

Lectures: 3:00^{PM} to 3:50^{PM} Monday, Wednesday & Friday
 Room C2-33

Student Presentations: TBA

Date	Topic	Instructor
Monday, Jan 6	History of Radiation Protection	Leon
Wednesday, Jan 8	Measuring Radiation	Leon
Friday, Jan 10	Background Radiation and Risk	Leon
Monday, Jan 13	Regulations and the ALARA Principle	Leon
Wednesday, Jan 15	Dose Monitoring	Leon
Friday, Jan 17	Radiation Interactions, Analytic Shielding with Simple Geometry	Leon
Monday, Jan 20	UF Holiday - No Class	
Wednesday, Jan 22	Analytic Shielding (<i>continued</i>)	Leon
Friday, Jan 24	Complications to the Analytic Approach, Monte Carlo Calculations	Leon
Monday, Jan 27	Materials Used for Shielding, In-class lab	Leon
Wednesday, Jan 29	Radiation Protection in Diagnostic Radiology	Leon
Friday, Jan 31	Modality-Specific Radiation Protection Practices	Leon

Monday, Feb 3	Intro to Diagnostic Shielding	Leon
Wednesday, Feb 5	Intro to Diagnostic Shielding (<i>continued</i>)	Leon
Friday, Feb 7	Radiography Shielding	Leon
Monday, Feb 10	Shielding for Other Modalities	Leon
Wednesday, Feb 12	CT Shielding	Leon
Friday, Feb 14	CT Shielding (<i>continued</i>)	Leon
Monday, Feb 17	Shielding Reports and Facility Design	Leon
Wednesday, Feb 19	Shielding Verification and Facility Surveys	Leon
Friday, Feb 21	Shielding Verification Lab	Leon
Monday, Feb 24	Student Presentations – Diagnostic Shielding Project (3:00-5:00)	Leon
Wednesday, Feb 26	The nuclear medicine environment	Leon
Friday, Feb 28	Radiation Protection in NM	Leon
Monday, Mar 2	No class – UF Spring Break	
Wednesday, Mar 4	No class – UF Spring Break	
Friday, Mar 6	No class – UF Spring Break	
Monday, Mar 9	TG-108 for PET	Leon
Wednesday, Mar 11	More Room Shielding in NM	Leon
Friday, Mar 13	I-131 & Release of Radioactive Patients	Leon
Monday, Mar 16	MIRD dosimetry, Monitoring in NM	Leon
Wednesday, Mar 18	Review of Radiation Therapy Modalities	Arreola
Friday, Mar 20	NCRP 151 Formalism - Overview	Arreola
Monday, Mar 23	NCRP 151 Formalism - Overview (<i>continued</i>)	Arreola
Wednesday, Mar 25	Design of Linac Facilities up to 10 MV	Arreola
Friday, Mar 27	Design of Linac Facilities up to 10 MV (<i>continued</i>)	Arreola
Monday, Mar 30	Door & Maze Design of Linac Facilities up to 10 MV	Arreola
Wednesday, Apr 1	Door & Maze Design of Linac Facilities up to 10 MV (<i>continued</i>)	Arreola
Friday, Apr 3	Design of Linac Facilities Above 10 MV	Arreola
Monday, Apr 6	Design of Linac Facilities Above 10 MV (<i>continued</i>)	Arreola
Wednesday, Apr 8	Door & Maze Design of Linac Facilities above 10 MV	Arreola
Friday, Apr 10	Door & Maze Design of Linac Facilities above 10 MV (<i>continued</i>)	Arreola
Monday, Apr 13	Design of Gamma Knife Facilities	Arreola
Wednesday, Apr 15	Design of Cyberknife Facilities	Arreola
Friday, Apr 17	Design of Tomotherapy Facilities	Arreola
Monday, Apr 20	Design of HDR Afterloader Facilities	Arreola
Wednesday, Apr 22	Design of Brachytherapy Facilities	Arreola

Policies:

Examinations: There are no examinations in this course.

Course Grade: Will be calculated as follows:

Graded homework assignments:	25%
Diagnostic shielding project:	25%

Nuclear medicine shielding project: 25%
Therapy shielding project: 25%

Grading Scale: 93-100 A; 90-92 A-; 86-89 B+; 83-85 B; 80-82 B-; 76-79 C+; 73-75 C; 70-72 C-
Grades will be curved

Office Hours: By appointment

Academic Honesty: All students are required to abide by the University's honesty policy as published in UF Rule 6CI-4.017. Students should be familiar with the entire rule which can be reviewed at: <http://www.aa.ufl.edu/aa/Rules/4017.htm> and specifically addresses cheating;

Cheating: *The improper taking or tendering of any information or material which shall be used to determine academic credit. Taking of information includes, but is not limited to, copying graded homework assignments from another student; working together with another individual(s) on a take-home test or homework when not specifically permitted by the teacher; looking or attempting to look at another student's paper during an examination; looking or attempting to look at text or notes during an examination when not permitted. Tendering of information includes, but is not limited to, giving your work to another student to be used or copied; giving someone answers to exam questions either when the exam is being given or after having taken an exam; giving or selling a term paper or other written materials to another student; sharing information on a graded assignment.*

Class Attendance: Students are expected to attend each class period. Periods which may be missed should be brought to the attention of the Instructor as far in advance of the class period as possible. In the event of an unexcused absence, it is the student's responsibility to obtain and review the material that was covered during that class period. Students must participate in each laboratory exercise.

Make-up Labs & Assignments: Make-up laboratory exercises and assignments will only be considered for exceptional circumstances and will be implemented by the instructor on a case-by-case basis.

Class Demeanor: Class distractions such as cell phones and pagers are unacceptable. Students will ensure that any such devices that are brought into the classroom will be turned off, or operated in a silent mode, during the class period.

Students w/ Disabilities: Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.