

|| ENU 6652
Diagnostic Radiological Physics II (Physics of CT and Ultrasound)

Course Syllabus Spring 2021

Instructors: Manuel Arreola, PhD (arreom@radiology.ufl.edu)
 Lynn Rill, Ph.D. (rillln@radiology.ufl.edu)
 Stephanie Leon, PhD (leons@radiology.ufl.edu)

TAs: Ana Heshmat, M.S. (heshma@shands.ufl.edu)
 Nathalie Correa, M.S. (corren@radiology.ful.edu)
 Office hours TBA

Textbooks: *The Essential Physics of Medical Imaging, 3rd Edition*, by Bushberg, Seibert, Leidholdt Jr. and Boone. Lippincott, Williams & Wilkins Publishers, Baltimore, MD (2011). *(Required)*

Lectures: 9:30-10:45 Tuesdays and Thursdays
 Room C2-33

Lectures are broadcast live online and also recorded. Students who are feeling unwell, who are under quarantine, or who are “withheld from campus”, are required to stay home and may attend the live online lectures if they are feeling up to it, **with prior notification to the instructor**. Access to the recorded lectures is by instructor permission only. Documentation supporting the reason why access is needed may be requested.

Demonstration Labs: Three TBA

Date	Topic	Instructor
Tuesday, Jan 12	Laminar Tomography/ Basics of X-Ray Cross-Sectional Imaging	Arreola
Thursday, Jan 14	CT Algebraic and Simple Back-Projection Reconstruction Algorithms	Arreola
Tuesday, Jan 19	Filtered Back-projection, Fourier Transforms and Kernels	Arreola
Thursday, Jan 21	Sequential and Helical Scanners	Arreola
Tuesday, Jan 26	Narrow and Broad-beam Multi-slice Scanners	Arreola
Thursday, Jan 28	Image Quality in CT/ Instrumentation	Arreola
Tuesday, Feb 2	CT Demo Lab 1: Image Quality	Arreola
Thursday, Feb 4	CT Dose Indicators: CTDI, DLP and SSDE (Part 1)	Arreola
Tuesday, Feb 9	CT Dose Indicators: CTDI, DLP and SSDE (Part 2)	Arreola

Thursday, Feb 11	EXAM 1	
Tuesday, Feb 16	Iterative Reconstruction Algorithms	Arreola
Thursday, Feb 18	CT Demo Lab 2: CT Dose	Arreola
Tuesday, Feb 23	CT Artifacts and Clinical Examples	Arreola
Thursday, Feb 25	Cardiac CT	Arreola
Tuesday, Mar 2	CTA, Perfusion and 3D Applications	Arreola
Thursday, Mar 4	Dual Energy CT	Arreola
Tuesday, Mar 9	Joint Commission and ACR Compliance in CT	Arreola
Thursday, Mar 11	EXAM 2	Arreola
Tuesday, Mar 16	Fetal Dose Calculations in Radiology 1	Leon
Thursday, Mar 18	Fetal dose calculations in Radiology 2	Leon
Tuesday, Mar 23	Fetal dose calculations in Radiology 3	Leon
Thursday, Mar 25	US1: Basic Acoustics and Transducers	Rill
Tuesday, Mar 30	US2: Pulsed Ultrasound and Image Formation	Rill
Thursday, Apr 1	US3: Imaging modes: multi-frequency, harmonics, Doppler	Rill
Tuesday, Apr 6	US4: US Image Quality and QC	Rill
Thursday, Apr 8	Demo Lab: US QC (in class)	Rill
Tuesday, Apr 13	US5: US Artifacts	Rill
Thursday, Apr 15	US6: Newer US techniques	Rill
Thursday, Apr 22	EXAM 3	

Policies:

Examinations: As indicated, times TBA

Course Grade: Will be calculated as follows:

Graded homework assignments:	10%
Exam 1	30%
Exam 2	30%
Exam 3	30%

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.