

Introduction to the Physics of Diagnostic Imaging

UT Health San Antonio – FALL 2019

Mon/Wed 10:00-11:30 am, MED Room 625F

TEXT: Bushberg, Seibert, Leidholdt, & Boone, The Essential Physics of Medical Imaging, 3rd edition. Philadelphia, PA: Lippincott Williams & Wilkins; 2012.

FINAL GRADE: Homework: 50%; Quizzes 20%; Project 20%; Comprehensive Final: 10%

	Date	Subject	Reading Assignment /Quiz	Lecturer
1	Mon Aug 19	Introduction/Radiation & the Atom	Ch. 1 & Ch. 2	Sampson
2	Wed Aug 21	Interactions of Radiation with Matter	Ch. 3	Sampson
3	Mon Aug 26	Radiographic Image Quality – Pt. 1	Ch. 4	Nute
4	Wed Aug 28	Radiographic Image Quality – Pt. 2	Ch. 4	Nute
	Mon Sept 2	LABOR DAY HOLIDAY	NO CLASS	No Class
5	Wed Sept 4	Medical Imaging Informatics	Ch. 5	Sampson
6	Mon Sept 9	Production & Creation of Radiographs	Ch. 6, Hmwk 1	Nute
7	Wed Sept 11	Digital Radiography	Ch. 7, Quiz 1	Nute
8	Mon Sept 16	Mammography – Instrumentation	Ch. 8.1-8.3	Sampson
9	Wed Sept 18	Mammography – Receptors & Adv Systems	8.4-8.5	Sampson
10	Mon Sept 23	Mammography – Dosimetry & Regulatory	8.6-8.7	Sampson
11	Mon Sept 25	X-ray Radiography & Fluoroscopy	Ch. 9	Nute
12	Wed Sept 30	Interventional Radiology	Handouts*	Nute
13	Wed Oct 2	Computed Tomography–Methods & Modes	Chp. 10.1-10.3,	Nute
14	Mon Oct 7	Computed Tomography: Reconstruction	Chp.10.4-10.7	Sampson
15	Wed Oct 9	CT Image Quality & Artifacts	handout	Nute
16	Mon Oct 14	Dosimetry in Projection Imaging & CT	Ch. 11	Nute
17	Wed Oct 16	Cone-beam, Quantitative CT, Adv Recon	Handout, Hmwk 2	Sampson
18	Mon Oct 21	Advanced CT Methods	Quiz 2	Nute
19	Mon Oct 23	Nuclear Magnetic Resonance	Ch. 12	Sampson
20	Wed Oct 28	MRI Technology	Ch. 13	Sampson
21	Mon Oct 30	MRI Pulse Sequences	Ch. 13	Sampson
		Class Project Starts		
22	Wed Nov 4	Ultrasound Physics & Transducers	Ch. 14	Nute
23	Wed Nov 6	Ultrasound Display, Storage	Ch. 14.1-14.6	Nute
24	Mon Nov 11	Doppler US, QC, Bioeffects, Harmonic US, Artifacts	Ch. 14.7-14.12, Hmwk 3	Nute
25	Wed Nov 13	Nuclear Spectroscopy/Detectors	Chps. 15, 16, 17, Quiz 3	Sampson
26	Mon Nov 18	Basic Nuclear Medicine Imaging	Ch. 18	Sampson
	Wed Nov 20	THANKSGIVING EVE - NO CLASS	NO CLASS	No Class
	Mon Nov 25	RSNA, (Work on Class Project)	NO CLASS	No Class
	Wed Nov 27	RSNA, (Work on Class Project)	NO CLASS	No Class
27	Mon Dec 2	SPECT & PET	Ch. 19	Sampson
28	Wed Dec 4	Course Review, Class Project Presentations	Class Selected, Quiz 4	Sampson/Nute
29	Mon, Dec 9	Course Review, Class Project Presentations	Class Selected	Sampson/Nute
30	Wed, Dec 11	FINAL EXAMINATION	Comprehensive	Sampson/Nute

***Consult CANVAS Website (files tab) to download additional readings**

Course Director: Andrew Sampson

(6/28/2019)