

ECE/BioE 380 - Biomedical Imaging

Fall 2022

Instructor: Pengfei Song

Text: Fundamentals of Medical Imaging (Suetens); The Essential Physics of Medical Imaging (Bushberg)

Date	Lecture number	Book Chapter	Topic	HW Hand-out	HW Due (subject to change, follow each hw's instruction)
August	23	1 (Bushberg)	Intro to Biomedical Imag.		
	25	1 (Bushberg)	Intro to Biomedical Imag.		
	30	2	Notes	Fourier Transform and Properties I	HW #1 (L1-2)
September	1	2	Notes	Fourier Transform and Properties II	
	6	3	1 (Suetens); 4.1-4.5, 4.7-4.9 (Bushberg)	Basic physics review, Image Properties and Processing	HW #2 (L3)
	8	3	2 (Suetens); 6.1-6.2, 7.1-7.2, 7.5 (Bushberg)	Basic physics review, Image Properties and Processing	
	13	4	2 (Suetens); 6.1-6.2, 7.1-7.2, 7.5 (Bushberg)	X-Ray Imaging	HW #3 (L4)
	15	4	2 (Suetens); 6.1-6.2, 7.1-7.2, 7.5 (Bushberg)	X-Ray Imaging	
	20	4	2 (Suetens); 6.1-6.2, 7.1-7.2, 7.5 (Bushberg)	X-Ray Imaging	
	22	5	3 (Suetens); 10.1-10.5 (Bushberg)	Computed Tomography (X-ray)	HW #4 (L5)
	27	5	3 (Suetens); 10.1-10.5 (Bushberg)	Computed Tomography (X-ray)	HW #3 (L4)
	29	5	3 (Suetens); 10.1-10.5 (Bushberg)	Computed Tomography (X-ray)	
October	4	5	3 (Suetens); 10.1-10.5 (Bushberg)	Computed Tomography (X-ray)	
	6	6	4 (Suetens); 12 (Bushberg)	Magnetic Resonance Imaging	HW #5 (L6, Pt1)
	11	No Class			
	13	No Class; Mid-term exam (L1-L5), 7-10PM ECEB 3013			
	18	6	4 (Suetens); 12 (Bushberg)	Magnetic Resonance Imaging	
	20	6	4 (Suetens); 12 (Bushberg)	Magnetic Resonance Imaging	
	25	6	4 (Suetens); 12 (Bushberg)	Magnetic Resonance Imaging	HW #6 (L6, Pt2)
	27	6	4 (Suetens); 12 (Bushberg)	Magnetic Resonance Imaging	
November	1	7	5 (Suetens); 14.1-14.7 (Bushberg)	Ultrasound Imaging	HW #7 (L7)
	3	7	5 (Suetens); 14.1-14.7 (Bushberg)	Ultrasound Imaging	HW #6 (L6, Pt2)
	8	Election day, no class			
	10	7	5 (Suetens); 14.1-14.7 (Bushberg)	Ultrasound Imaging	
	15	7	5 (Suetens); 14.1-14.7 (Bushberg)	Ultrasound Imaging	
	17	8	6 (Suetens); 15, 16.1-16.2, 18.1, 19.1-19.3 (Bushberg)	Nuclear Medicine Imaging	HW #8 (L8)
	22	Thanksgiving Break			
	24	Thanksgiving Break			
	29	8	6 (Suetens); 15, 16.1-16.2, 18.1, 19.1-19.3 (Bushberg)	Nuclear Medicine Imaging	
December	1	8	6 (Suetens); 15, 16.1-16.2, 18.1, 19.1-19.3 (Bushberg)	Nuclear Medicine Imaging	
	6				HW #8 (L8)
	8				
	9	Final Exam (Lecture 1-8) 1:30-4:30PM, ECEB 3013			

Syllabus content subject to change.