

Medical Physics / BME 710, Advances in Magnetic Resonance Imaging
Tentative Class Schedule for Fall 2018

	Date	Day	Lecture	Week	Topic	Journal Club Presenter	Homeworks posted (8 total)	Homeworks due date	Project
MR Fundament	6-Sep	Thu	1	1	Course Overview + MR Hardware				
	11-Sep	Tue	2	2	MR Hardware				
	13-Sep	Thu	3		MR Signal, Relaxation, Bloch Equations		1: MR Fundamentals 1		
	18-Sep	Tue	4	3	Relaxation, Bloch Exations				
	20-Sep	Thu	5		RF Coils (including RF lab demo)		2: MR Fundamentals 2		
	25-Sep	Tue	6	4	Echoes, Pulse Sequences			HW 1	
Image Reconstruction	27-Sep	Thu	7		k-space	Aitor			
	2-Oct	Tue	8	5	Quantitative MRI	Yavuz			
	4-Oct	Thu	9		Scanner Demo - Animal Scanner		2: MR Fundamentals 2		
	9-Oct	Tue	10	5	Parallel MRI		3: Image Reconstruction		
	11-Oct	Thu	11		Non-Cartesian Trajectories: Data Acquisition and Reconstruction I	Robert		HW 2	
	16-Oct	Tue	12	7	Non-Cartesian Trajectories: Data Acquisition and Reconstruction II				
	18-Oct	Thu	13		Constrained Reconstruction / Compressed Sensing	Zach	4: T1 and T2 relaxation	HW 3	
	23-Oct	Tue	14	8	SNR: Considerations and Measurements	Ruiqi			
	25-Oct	Thu	15		BOLD signal and functional MRI	Maribel		HW 4	
	30-Oct	Tue	16	9	Phase in MRI 1: Fat/water imaging	Ruiyang			proposal due
MR Applications	1-Nov	Thu	17		Phase in MRI 2: Phase Contrast (Velocity) & MR Elastography	Grant	5: Phase in MRI		
	6-Nov	Tue	18	10	MR Angiography: Contrast-enhanced & Time-of-flight				
	8-Nov	Thu	19		Cardiac MRI: cardiac and respiratory gating, segmented k-space, sequences			HW 5	
	13-Nov	Tue	20	11	Perfusion MRI - Contrast-enhanced and arterial spin labeling (ASL)	Mu-Lan	6: Constrained Reconstruction		
	15-Nov	Thu	21		Diffusion MRI	Christa			
	20-Nov	Tue	22	12	Pet / MRI	Maribel		HW 6	
	22-Nov	Thu			Thanksgiving recess - no class				
	27-Nov	Tue	23	13	Hyperpolarization	Lawrence			
	29-Nov	Thu	24		MR Spectroscopy	Jason			
	4-Dec	Tue	25	14	Trip to GE Healthcare				
	6-Dec	Thu	26		Project Presentations 1				
	11-Dec	Tue	27	15	Project Presentations 2 - last class				presentation
	16-Dec	Sun			Report is due		7: Project Report Critique		
	18-Dec	Tue			Critique of project report due			HW 7	project report due

as of 11/02/2018