

Fourier Transform Course Syllabus

Text: Daniel B. Rowe, *The Fourier Transform: A Technical Understanding with Applications*

Week 1	Fourier Series Representation of Signals
Week 2	Representation of Systems: Impulse Response and Convolution Integral
Week 3	Continuous Fourier Transform Pairs
Week 4	Continuous Fourier Transform Properties
Week 5	2D & 3D Fourier Transform
Week 6	1 st Midterm Exam
Week 7	Discrete Sampling
Week 8	Discrete Fourier Transform and Fast Fourier Transform
Week 9	Discrete Fourier Transform Properties
Week 10	2D & 3D Discrete Fourier Transform
Week 11	Temporal and Spatial Filtering
Week 12	Frequency Filtering
Week 13	2 nd Midterm Exam
Week 14	The MRI Signal Equation and k-Space
Week 15	A MRI Signal Simulator and Ideal Fourier Reconstruction
Week 16	EPI Reconstruction and Observation Gridding
Week 17	Image Artifacts from Broken Assumptions and Image Processing
Week 18	Final Exam