## Revised Syllabus

### Week 1
- **Thursday** 9/23  
  Introduction, Course Policies, Overview of Imaging Modalities

### Week 2
- **Tuesday** 9/28  
  Linear systems: linearity, delta functions, superposition integral, shift invariance, 1D and 2D convolution, examples.
- **Thursday** 9/30  
  Fourier Transforms: 1D FT, basis functions, FT properties, duality

### Week 3
- **Tuesday** 10/5  
  Fourier Transforms: 2D FT, basis functions, properties, duality
- **Thursday** 10/7  
  Sampling: 1D and 2D sampling, Whitaker-Shannon sampling theorem, aliasing

### Week 4
- **Tuesday** 10/12  
  Sampling continued, Windowing, Resolution. Discrete Fourier Transform:
- **Thursday** 10/14  
  MRI: Basic physics, Bloch Equation

### Week 5
- **Tuesday** 10/19  
  MRI: Gradients, Signal Equation, k-space trajectories
- **Thursday** 10/21  
  MRI: sampling requirements, slice selection, image contrast

### Week 6
- **Tuesday** 10/26  
  MRI: angiography, arterial spin labeling, diffusion imaging, fMRI
- **Thursday** 10/28  
  Noise

### Week 7
- **Tuesday** 11/2  
  Least squares Estimation and Inverse Theory
- **Thursday** 11/4  
  X-Rays, CT: physics and hardware

### Week 8
- **Tuesday** 11/9  
  CT: Radon transform, filtered back projection
- **Thursday** 11/11  
  NO CLASS. Veteran’s Day Holiday

### Week 9
- **Tuesday** 11/16  
  Ultrasound: echo equation, impulse response, diffraction
- **Thursday** 11/18  
  Ultrasound: phased array systems, beam formation, Doppler

### Week 10
- **Tuesday** 11/23  
  Nuclear Imaging Modalities, Molecular Imaging
- **Thursday** 11/25  
  NO CLASS. Thanksgiving Holiday

### Week 11
- **Tuesday** 11/30  
  Optical Imaging, EEG, MEG
- **Thursday** 12/2  
  TBD