Week	Date	Lecture Topic	Lab	Due
1			None	
	8/23/2018	Introduction and Course Overview		
2	8/28/2018	Review: Radiation interactions and basic detection concepts	Reproducible Workflows for NE204	
	8/30/2018	Review: Semiconductor detectors, signal generation		Reading Assignment 1
3	9/4/2018	Review: Semiconductor detectors & applications	RUA Onboarding & Lab I Intro	
	9/6/2018	Review: Preamplification		Reading Assignment 2
4	9/11/2018	Review: Analog Signal processing	Lab I: DSP Spectroscopy	
	9/13/2018	**Guest Lecture: Marco Salathe (LBNL) - Semiconductor electrode segmentation and signal generation**		Lab 0 Due, Reading Assignment 3
5	9/18/2018	DSP I - Intro and ADCs	Lab I: DSP Spectroscopy	
	9/20/2018	DSP II - Deconvolution and FIR synthesis		
6	9/25/2018	DSP III - Deconvolution and FIR synthesis	Lab I: DSP Spectroscopy	
	9/27/2018	**NO LECTURE**		Reading Assignment 4
7	10/2/2018	Energy resolution, electronic noise, fano factor	Lab II: DSP Timing and PSA	
	10/4/2018	**Guest Lecture: Stephen Derenzo (LBNL) - Scintillation Detectors Overview and Properties**		Lab 1 Due
8	10/9/2018	Scintillation Detectors - Photodetectors and Non-proportionality	Lab II: DSP Timing and PSA	
	10/11/2018	**Guest Lecture: Stephen Derenzo (LBNL) - Measurement and Prediction of Scintillator Timing Properties**		Reading Assigment 5
9	10/16/2018	Signal generation in semiconductors - Shockley Ramo	Lab III (variable)	
	10/18/2018	Charge carrier transport - mobility and lifetime		Reading Assignment 6
10	10/23/2018	**Guest Lecture: Peter Marleau (SNL) - Neutron Detection and Pulse Shape Discrimination**	Lab III (variable)	
	10/25/2018	**Guest Lecture: Erik Brubaker (SNL) - Neutron Imaging - Modalities and Applications**		Lab 2 Due
11	10/30/2018	Organic Scintillation Detectors	Lab III (variable)	
	11/1/2018	Organic Scintillators II		
12	11/6/2018	Gamma-ray Imaging - Intro & Applications	Final Project	
	11/8/2018	Gamma-ray Imaging - Image quality & evaluation		Reading Assignment 7
13	11/13/2018	Gamma-ray Imaging - Modalities & Reconstruction	Final Project	
	11/15/2018	Scene Data Fusion: Gamma-ray Imaging with mobile systems and contextual information		
14	11/20/2018	**Guest Lecture: Georgia Gkioxari (FAIR) - Introduction to Deep Learning & Applications in Visual Recognition**	Final Project	
	11/22/2018	**NO Lecture (Thanksgiving)**		Reading Assignment 8
15	11/27/2018	Noble-gas detectors & time projection chambers	Final Project	
	11/29/2018	**Guest Lecture: Morgan Burks (LLNL) - Mechanically-cooled HPGe for Terrestrial & Space Applications**		Final project draft, Reading Assignment 9
16	12/4/2018	Student Presentations	No Lab - RRR Week	Peer review due
	12/6/2018	Course Summary		
17	12/11/2018	No class - Finals week	No Lab - Finals Week	
	12/13/2018	No class - Finals week		Final Project Due