

Week	Date	Lecture Topic	Lab	Due
1	8/23/2018	Introduction and Course Overview	None	
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 Assignment 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	Introduction to gamma-ray imaging		
12	11/6/2018	Gamma-ray imaging modalities	Final Project	
	11/8/2018	Principles of mobile detector operation - SLAM		
13	11/13/2018	Advanced concepts in data fusion	Final Project	
	11/15/2018	Student Presentations		
14	11/20/2018	Student Presentations	Final Project	
	11/22/2018	NO Lecture (Thanksgiving)		
15	11/27/2018	Student Presentations	Final Project	
	11/29/2018	Student Presentations		