

Syllabus - Geoscience 777 - Spring 2019 - Version 2/7/2019

Week of	Topic/s	PPT#	Problem Set Assigned (due one week later)	Lab Exercise (week performed) (due one week later)
01/22/19	Introduction: What is 777? Historical Background	0 10		
01/29/19	Electron-sample interactions	20	CASINO 1 (CASINO v 2.51)	Cancelled due to weather
02/05/19	Electron-optical Column Vacuum	30 31	CASINO 2	Intro to S3400 SEM: column set up; SEI; BSE
02/12/19	Image Acquisition (includes low voltage) VP-SEM/ESEM	110 35	Image J exercise	Imaging exercise (lava, high/low Z)
02/19/19	EDS I: Intro to EDS	40	EDS Simulation I (DTSA II)	VP SEM imaging (include ESED and BSED)
02/26/19	EDS II: Quant EDS III: Wrinkles in Quant	41 42	EDS Simulation II (DTSA II)	Intro to AZTec EDS; Deadtime, artifacts
03/05/19	EBSD CL	140 112	EDS Simulation III (DTSA II)	Standard vs standardless Quant (roundrobin mount)
03/12/19	Auger Spectroscopy (P. Sobol Lecturer) X-ray Photoelectron Spectroscopy "		Two Papers: Review Newbury'05/Burgess-06	EBSD; CL
03/19/19	Spring Break			
03/26/19	WDS I: Spect, xtals, PHA	50	Spectro Crystals Ex.	Intro to PFE: Peaking, PHA, wavescans
04/02/19	WDS II: Interferences, pk shifts, bkg models, comparison EDS vs WDS Standards	51 75	ID of peaks in WDS scan	WDS: Pulse Height Analysis
04/09/19	Trace elements Thin Films	80 100	Virtual WDS	WDS+EDS on SX5: RR mount
04/16/19	Light Elements Specimen Preparation	90 130	GMR Film exercise	WDS+EDS on SX5: RR mount-cont
04/23/19	Difficult materials: glass, calcite, etc Error Budget	170 70	TBD	TDI
04/30/19	X-ray Mapping Experiment writeup	TBW TBW	TBD	X-ray Mapping/Phase ID