

Syllabus - Geoscience 777 - Spring 2012-Version 1

Week#	Week of	Topic/s	PPT #	Problem Set assigned (due one week later)	Lab Exercise (Week performed)
1	01/23/12	Introduction: What is 777? Electron-sample interactions Historical Background (optional) Electron-optical Column Vacuum	0 20 10 30 31		
2	01/30/12	Image Acquisition CL Image Processing (optional)	110 112 111	Monte Carlo I (CASINO)	Intro to S3400 SEM: column set up; SEI, BSE
3	02/06/12	EDS	40	Dead time	SEM of complex stuff; CL
4	02/13/12	Intro to DTSA-2 EDS software		EDS Simulation I	Intro to NSS EDS; DT, artifacts
5	02/20/12	VP-SEM/ESEM Low Voltage SEM	35 36	EDS Simulation II	VP-SEM operation; comparison ESED vs BSED
6	02/27/12	Advanced topics in SEM and EDS (include mapping)	120	EDS Simulation III	Particle EDS: VP-SEM vs HiVac
7	03/05/12	WDS I: Spect, xtals, PHA	50	Image J exercise	SEM-EDS Lab Exam
8	03/12/12	WDS II: Intfer, pk shifts, bkg model, comparison EDS-WDS	51	Spectro Xtals Exercise	PfE: Peaking, PHA, wavescans
9	03/19/12	Matrix correction	60	ID of peaks in WDS scan	Pulse height analysis
10	03/26/12	Standards Specimen Preparation	75 130	ZAF exercise	Analysis of unknown
	(Spring Break)				
11	04/09/12	Trace elements	80	Virtual WDS	Trace element analysis
12	04/16/12	Light Elements Thin Films Particles	90 100 160	GMR Film exercise	Thin Film
13	04/23/12	Difficult materials: glass, calcite, etc	170	TBD	Time Dependent Intensities
14	04/30/12	Accuracy and Errors	70	Statistics exercise	EPMA Lab Exam
15	05/07/12	EBSD	140	TBD	EBSD