Syllabus - Geoscience 777 - Spring 2013 - Version 1/16/13

Week#	Week of	Topic/s	PPT#	Problem Set Assigned (due one week later)	Lab Exercise (week performed) (due one week later)
1	01/21/13	Introduction: What is 777? Electron-sample interactions Electron-optical Column Vacuum Historical Background (optional)	0 20 30 31 10		
2	01/28/13	Image Acquisition CL Image Processing (optional)	110 112 111	Monte Carlo (CASINO 2.48)	Intro to S3400 SEM: column set up; SEI; BSE
3	02/04/13	EDS	40	EDS Simulation I	SEM of complex material; CL
4	02/11/13	VP-SEM/ESEM Low Voltage SEM	35 36	EDS Simulation II	Intro to NSS EDS; Deadtime, artifacts
5	02/18/13	Advanced topics in SEM and EDS (including mapping)	120	EDS Simulation III	VP-SEM operation; ESED vs BSED
6	02/25/13	WDS I: Spect, xtals, PHA	50	Image J exercise	SEM-EDS Lab Exam
7	03/04/13	WDS II: Interferences, pk shifts, bkg models, comparison EDS vs WDS	51	Spectro Xtals Exercise	Intro to PfE: Peaking, PHA, wavescans
8	03/11/13	Matrix correction	60	ID of peaks in WDS scan	Pulse Height Analysis
9	03/18/13	Standards Specimen Preparation	75 130	ZAF exercise	Analysis of unknown
	03/25/13	SPRING BREAK			
10	04/01/13	Trace elements	80	Virtual WDS	Trace element analysis
11	04/08/13	Light Elements Thin Films Particles	90 100 160	GMR Film exercise	Thin Film
12	04/15/13	Difficult materials: glass, calcite, etc	170	TBD	Time Dependent Intensities
13	04/22/13	Accuracy and Errors	70	Statistics exercise	EPMA Lab Exam
14	04/29/13	XRF, Synchrotron	150	TBD	XRF Demo
15	05/06/13	EBSD	140		EBSD Demo