

Revised Syllabus - Geology 777 - Fall 2009

Date	Topic/s	PPT #	Problem Set (due one week later)	Lab Exercise (Week performed)
09/08/09	Introduction: What is 777? Electron-sample interactions (Historical background: extra)	0 20 10		
09/11/09	Electron-optical Column Vacuum	30 31	Monte Carlo I	Intro to S3400 SEM: column set up; SEI, BSE
09/18/09	Image Acquisition CL	110 112	Monte Carlo II	SEM of complex material; CL
09/25/09	EDS	40	EDS Simulation I	Intro to NSS EDS; DT, artifacts
10/02/09	VP-SEM/ESEM Low Voltage SEM	160 TBD	EDS Simulation II	VP-SEM operation; comparison ESED vs BSED
10/09/09	Advanced topics in SEM and EDS (include mapping)	TBD	Image J exercise	Particle EDS in VP-SEM vs High Vacuum
10/16/09	WDS I: Spect, xtals, PHA	50	Spectro Xtals Exercise	SEM-EDS Lab Exam
10/23/09	WDS II: Intfer, pk shifts, bkg model comparison EDS-WDS	51	ID of wavescan peaks in unknown spectrum	Intro to SX51: column alignment, Fara current
10/30/09	Matrix correction	60	ZAF exercise	Intro to PFW: Peaking, PHA, wavescans
11/06/09	Trace elements Light elements	80 90	Interferences with Virtual WDS	Pulse height analysis
11/13/09	Thin Films and Particles Glass and other sensitive material	100 TBD	Minimum Detection Limits	Quant. Analysis of mineral
11/20/09	Standards Specimen Preparation	75 130	GMR Film exercise	EPMA Lab Exam
12/04/09	Accuracy and Errors	70		Trace element detection
12/11/09	EBS	140		EBS