

Lec#	Date		Lab#	Date		Exercises
1.1	1/29	What is GEOSCI 777	1	1/30	<i>No Lab Week 1</i>	
1.2		Schedule, Outlook, Overview of Techniques				
2.1	2/5	Waves & Particles	2	2/6	Lab 1	E1. Waves/Plotting
2.2		Historical Development of E-beam Microanalysis			Lab tour, sample prep, optical microscopy	
3.1	2/12	Electron-Specimen Interactions	3	2/13	Lab 2	
3.2		Sample Surface Preparation			SEM 1- Electron Imaging SE, BSE	
4.1	2/19	SE: Imaging and Detection	4	2/20	Lab 3	E2. CASINO
4.2		BSE: Imaging and Detection			EPMA 1- Overview, stage, optics	
5.1	2/26	Cathodoluminescence (CL)	5	2/27	Lab 4	
5.2		EDS I: Intro X-ray Spectroscopy			EPMA 2- BSE/SE on EPMA	
6.1	3/4	EDS II: Wrinkles in Quantification	6	3/5	Lab 5	E3. ImageJ
					EPMA 3- CL/EDS on EPMA	
7.1	3/11	Electron Source, Lenses, Optics	7	3/12	Lab 6	
7.2		Surface Analysis Spectroscopies (Sobol)			EPMA 4- Midterm Data	<i>Midterm Assigned</i>
8.1	3/18	Vacuum systems	8	3/19	Lab 8	E4. DTSA-II
8.2		Variable Pressure-SEM			EPMA 5- Midterm Data 2	
		<i>Spring Break</i>			<i>Spring Break</i>	
9.1	4/1	Electron Backscatter Diffraction	9	4/2	Lab 9	
					SEM 2- VP-SEM	<i>Midterm due</i>
10.1	4/8	Quantitative Microanalysis	10	4/9	Lab 10	E5. MTEX
		Peaks and Backgrounds, Matrix Corrections			SEM 3- EBSD	
11.1	4/15	WDS I	11	4/16	Lab 11	
11.2		Spectrometers, Diffraction Crystals, Standards			EPMA 6- WDS Spectral Scans, Standardization	
12.1	4/22	WDS II	12	4/23	Lab 12	
12.2		Advanced Applications			EPMA 7- Quant WDS with Standards	
13.1	4/29	EPMA/SEM: tools in the realm of Microanalysis	13	4/30	Lab 13	<i>Final Assigned</i>
13.2					EPMA 8- WDS Mapping, MAN technique	
14.1	5/6	Exam Week				<i>Final Due</i>
		Take-home exam due 5/10 at 5PM				