

Spring 2020

Course Syllabus

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Syllabus

Zoom LTI PRO

My Media

SATELLITE REMOTE SENSING – SIO 135/SIO 236

Date	Topic	Reading	Homework	Lecturer
LAB 0	Review MATLAB or PYTHON			
31MAR	Introduction to course, labs, term papers Overview of remote sensing	Rees 1.1-1.4 Appendix		
02APR	Platforms and orbits Use of color in RS	Rees 10.1-10.4 notes on orbits	HW1	
LAB 1	Matlab basics, plotting			
07APR	Electromagnetic radiation, polarization	Rees 2.1-2.2 EM Summary		
09APR	GPS and the Ionosphere Fourier transform introduction	Rees 2.3	HW2	
LAB 2	1-D and 2-D Fourier transforms			
14APR	Thermal radiation	Rees. 2.5-2.6 notes on radiation		
16APR	Spectra and fourier transforms Diffraction	Rees. 2.7 notes on fourier	HW3	
LAB 3	Data Types			
21APR	Propagation, dispersion, and scattering	Rees 3.1, 3.3, 3.5		
23APR	Image processing - 1	Rees 11.1-11.2 notes1	HW4	
LAB 4	Google Earth			
28APR	Image Processing - 2 Optics, stereo	Rees 5.1-5.3 convolution.m	HW5	
30APR	Image classification Machine learning	Rees 11.3-11.4 classification demo		
LAB 5	Image Processing			
05MAY	Review and go over HW 1-5 Practice Midterm		Term Paper - Part 1 Due (grad students)	
07MAY	Midterm			
NO LAB				
12MAY	Passive microwave systems and applications	Rees 7.1-7.4 notes1 notes2		
14MAY	Radar and laser altimetry	Rees 8.1 - 8.3 notes	HW6	
LAB 6	Image Classification			
19MAY	Scattering and Synthetic Aperture Radar (SAR)	Rees 9.1 - 9.3 Image Classification Scatterometry SAR Theory	Term Paper - Part 2 Due (grad students)	
21MAY	Radar Interferometry	Rees 9.4-9.5 InSAR Theory (not on final exam)	HW7 - Due June 6 KMZ-helper	
LAB 7	Laser and Radar Altimetry			
26MAY	Earthquakes and Volcanoes			
28MAY	Remote sensing of the cryosphere:			
LAB 8	Radar Interferometry	(optional lab)		
02JUN	Grad. Student Presentations			
04JUN	Grad. Student Presentations Review for Final Exam	LAST DAY TO TURN IN ALL HOMEWORK AND LABS		
09JUN	Final Exam 11:30 - 1:30 PM	The final exam will include questions from the graduate student presentations. The exam will have questions from the entire course.	Term Paper - Part 3 Due (grad students)	