

**Geog 342 Remote Sensing and Digital Image Processing Syllabus
Fall 2010**

Week/Session	Topics	Reading	Lab	Questions	Discussion
1	Course Overview Course Objectives Concepts of Remote Sensing Concepts of Digital Image Processing Visual Interpretation Fundamentals WISIMG Overview Feature Analyst Opticks	Ch 1, Ch 4, Sections 1-2	Opticks Overview Wisclmage Overview Review Image Sample:	Yes	Yes
2	Survey of Optical Imaging Systems (spaceborne/airborne)	Ch 2, Sections 1-2, 6-10 Ch 6, Sections 1-3, 5, 7-10, 13-20	Review Remote Sensing Systems Opicks - Spectral/Band Subset, Change Bands Wisclmage - Histograms, Subset	Yes	TBD
3		Labor Day - No Class			
4	Image Enhancement Ratios, NDVI, Tasseled Cap	Ch 7, Section 2 beginning at pg 490, Sections 3-6 to pg 545	Opicks - Custom Ratio Wizards Wisclmage - Ratios, NDVI, Tasseled Cap	Yes	TBD
5	Image Rectification	Ch 7, Sections 1-2 to pg. 490 PDF Image Rectification using ArcGIS	ArcGIS - Rectify Image using	Yes	TBD
6	Traditional Image Classification 1 Classification Scheme Minimum Mapping Unit Air Photo Interpretator	Ch 7, Sections 7 and 11 PDF: Classification Systems, Minimum Mapping Unit	Hybrid Classification Pt 1 Unsupervised, Signature Creation Wisclmage - Cluster Opicks - TBD	Yes	TBD

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	Automated Classification Methods (Unsupervised, Supervised, Hybrid, Feature Analyst) Spectral Signature Creation and Editing				
7	Traditional Image Classification 2 Signature Evaluation Unsupervised and Supervised Classification Accuracy Assessment	Ch 7, Sections 8-10, 12, 14-17	Hybrid Classification Pt 2 Signature Evaluation, Supervised Classification Opticks Kmeans, Spectral Processing Extension Analysis of Results Error Matrix	Yes	TBD
8	Traditional Image Classification 3 Supervised Classification Maximum Likelihood Accuracy Assessment		Maximum Likelihood Opticks - Kmeans, Spectral Processing Extension ArcGIS - Python Accuracy Assessment Tool	Yes	TBD
9	Feature Analyst 1 Feature Analyst Fundamentals	Feature Analyst Documentation PDF: Feature Analyst White Papers	Feature Analyst Pt 1 - ArcGIS and Feature Analyst Fundamentals, Workflow	Yes	TBD
10	Feature Analyst 2 Feature Identification and Refinement	Feature Analyst Documentation PDF: Feature Analyst White Papers	Feature Analyst Pt 2 - ArcGIS and Feature Analyst Fundamentals, Workflow	Yes	TBD
11	LIDAR	Ch 8, Section 23	ArcGIS - Terrain Data Processing using	Yes	TBD

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	Systems Data Processing Workflow Discussion of Challenges Analysis and Interpretation of Results	ESRI Online Terrain Class Documentation			
12	RADAR Systems Image Processing Method: Analysis and Interpretation of Results	Ch 8, Sections 1-5, 7-10, 14-21 Opticks Documentator	Opticks - RADAR Processing Extension Speckle Removal Texture Algorithms	Yes	TBD
13	Hyperspectral Systems Data Processing Workflow Discussion of Challenges Analysis and Interpretation of Results	Ch 7, Section 19 Opticks Documentation	Opicks, Spectral Extension Hyperspectral Image Review Hyperspectral Processing	Yes	TBD
		PROJECTS ANNOUNCED <i>Presentations and Final</i>			
14		Project Ideas Due Open Discussion and Project Assistance			
15		Open Discussion and Project Assistance			
16		Open Discussion and Project Assistance			
		Project Presentations and Final Deliverables Due			
17		December 13, 2010			