

electromagnetic (EM) spectrum, and simple statistical distributions are necessary to understand the principles being presented. A review of these topics will be given during the first few weeks of class. These topics are of critical importance, and anyone who feels they may need additional background reading or other assistance should contact the instructor early in the semester. All of the satellite imagery lab exercises will utilize the windows machines in 3006. These machines all have the necessary software loaded onto them: IMAGINE

TEXTBOOKS

There are many excellent remote sensing textbooks available at this time, ranging from very basic to incredibly complex. The two selected for this course are somewhat advanced, but will serve you as good reference books for years to come.

REQUIRED: Jensen, J.R. 2005 *Introductory Digital Image Processing: A Remote Sensing Perspective*. 3rd Edition (do not get earlier editions, very different) Prentice-Hall, New York. ISBN 0-13-145361-0

Recommended but NOT required:

Jensen, J.R. 2000. *Remote Sensing of the Environment: An earth resource perspective*, 1st edition Prentice Hall, New Jersey.

ASSIGNMENTS

WEEKLY LABS = 65% of grade

Lab manual is available from TARGET Copies. It is your responsibility to bring the lab manual to every lab. Labs are frequently quite complex and much of each exercise will need to be completed outside of laboratory periods. Twelve lab exercises are planned and these will take you from basic introductory tasks through intermediate and some more advanced remote sensing techniques. You are given **1 week** to complete each lab and all labs must be handed with the answers typed up and references given, at the **beginning** of the next lab period (completing a previous weeks lab during the lab session is not allowed). Late labs will not be accepted and a grade of 0 will be recorded. If you have a legitimate reason for missing a lab the absence **MUST** be documented, e.g., you are in a car wreck, then I need to see the accident report, a death in the family, I need to see the obituary and service times. Labs are critical to this class and it is easy to fall behind. It is to prevent this that I am so strict about not accepting late labs. You have been warned, if it is late you receive a ZERO! Labs are an integral part of the learning procedure in this course and are timed to coincide with the appropriate lectures and reading materials. As such they comprise a significant proportion of your grade and should be taken very seriously.

EXAMS – Midterm (Feb 22nd -12%) & Final (April 19th - 18%)

Two examinations will be given: a mid-term exam (12% and given in class) and a final exam (18% and given in the final class of the semester). Both exams will use a short-answer, problem solving, image interpretation and essay questions as format. Graduate students will have additional questions to answer, compared to the undergraduate students. Make-up exams are not given unless written proof/documentation of the emergency which caused you to miss the exam is given (see above section for examples).

ASSIGNMENT – Future Directions of Remote Sensing (5%) Due in class on April 5th

For this assignment each student must find a research paper or other literature which they feel is an example or discussion of the Future Direction in the field of Remote Sensing. The piece must have been published in 2004-2005 (or else it won't be very current). The student will hand in a paper copy of the paper, IN ADDITION to a Digital version (pdf or doc is fine) as well as a 1 page (typed, single-spaced, font size 12 Times New Roman, 1" margins) describing what the novelty of the piece you selected is, what are the new developments and also include why you picked the piece and what you think of their suggestions. These summary pieces should also be emailed to me jsouthwo@geog.ufl.edu, and will be shared with all class members. Additional details will be given out in class but this is so you are aware of this assignment, can plan for it in terms of time, and can also keep an eye out for a suitable piece. As for Labs, no late assignments accepted.

ACADEMIC HONESTY

You are all bound by the student academic honor code.

"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

The work you hand in for labs and for exams MUST be your own work. Any material obtained from other sources must be cited correctly. Do not plagiarize material. The first time a student is caught cheating they will get zero on the lab/test. On the second offense the student will be reported to the appropriate student body.

Cell phones – These MUST be turned off in both lectures and labs. Also note when you are in the labs outside class time Cell phones must be off or you will be asked to leave the lab.

Consider both class and lab as mandatory if you wish to succeed in this course.

GRADING SCHEME:

[A= 90 and above] [B+=85-89.9] [B=80-84.9] [C+=75-79.9] [C = 70-74.9] [D+ = 65-65.9] [D = 60-64.9] [E = <60]

All grades will be available for you to see during office hours, and at the time of the midterm exam current course standing with a grade on the exam and in the class so far will be given out. Marks will be continuously updated and a tabulation will be provided of your necessary performance in the remaining labs/exam required to attain various grade levels if requested. It is your responsibility to know how well you are doing in the class.

EVALUATION

<u>Activity</u>	<u>%</u>
Laboratory Exercises (13)	65%; labs 1-10, 12 each 5%, lab 11 (a and b) is 10%
Midterm Examination	12%
Final Examination	18%
Assignment	5%

SCHEDULE

Lectures

Assigned readings from the text are listed below. Additional readings listed will also be available in the geography department office for you to borrow, copy and read).

<u>Week/Date</u>	<u>Topic</u>	<u>Readings</u>
		<u>Chapter (pages)</u>
Week 1: Jan 4 th	Introduction to Remote Sensing	1
Week 2: Jan 11 th	Aerial photography	2 (35-44)
Week 3: Jan 18 th	Scanner Systems	2-5
Week 4: Jan 25 th	Satellite Platforms	2-5
Week 5: Feb 1 st	Next generation satellites	11
Week 6: Feb 8 th	Pre-processing	6 & 7
Week 7: Feb 15 th	Multi-image analysis	8
Week 8: Feb 22 nd	MIDTERM EXAM – In Class	-----
Week 9: Mar 1 st	SPRING BREAK ----- NO CLASSES----	-----
Week 10: Mar 8 th	Classification	9
Week 11: Mar 15 th	Thermal Analysis	assigned #1
Week 12: Mar 22 nd	Change Detection Analysis	12
Week 13: Mar 29 th	Landscape Ecology & LULCC Research	13
Week 14: Apr 5 th	Scale and Modeling with RS	Assigned #2, #3
Week 15: Apr 12 th	Applications of RS & The Future of RS	10 & Assigned #4
Week 16: Apr 19 th	Final Exam – In Class	-----

Labs

Week/Date	Topic	Grade
Week 1: Jan 6 th	No Lab	
Week 2: Jan 13 th	Lab 1: Image Interpretation & Analysis of Satellite Data	5%
Week 3: Jan 20 th	Lab 2: Image Display & Cursor Operations	5%
Week 4: Jan 27 th	Lab 3: Data Formats, Contrast Stretching and Density Slicing	5%
Week 5: Feb 3 rd	Lab 4: Image Annotation & Map Composition	5%
Week 6: Feb 10 th	Lab 5: Geometric Correction	5%
Week 7: Feb 17 th	Lab 6: Spectral Enhancement: Band Ratioing & Image Filtering	5%
Week 8: Feb 24 th	No Lab	
Week 9: Mar 3 rd	Spring Break	
Week 10: Mar 10 th	Lab 7: Spectral Enhancement: Image Indices and PCA	5%
Week 11: Mar 17 th	Lab 8: Image Classification	5%
Week 12: Mar 24 th	Lab 9: Training Samples & more Classification	5%
Week 13: Mar 31 st	Lab 10: Supervised Classification & Accuracy Assessment	5%
Week 14: April 7 th	Lab 11: Change Detection, An Introduction to Spatial Modeler & Advanced Change Detection	10%
Week 15: April 14 th	Lab 12: Image Calibration & Surface Temperatures	5%
Week 16: April 21 st	Reading Day – No Class	

Lab Total = 65% of Class Grade