MAR 334 Remote Sensing of Environment

INSTRUCTOR: Kamazima Lwiza
OFFICE: Endeavour Hall, Room 169
OFFICE HOURS: TBA
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CLASS HOURS: TBA, MASIC Remote Sensing Lab
BLACKBOARD URL: http://blackboard.stonybrook.edu

A. DESCRIPTION
A study of the theory of remote sensing and its application in the fields of atmospheric science and oceanography. A discussion of the interaction of electromagnetic radiation with rough surfaces and the atmosphere is followed by a treatment of sensors and platforms. The remainder of the course is devoted to remote sensing data processing techniques used in remote sensing.

B. ORGANIZATION
This is a lecture course in which topics are presented by the instructor in the first six weeks, assigned readings are completed by students outside of class. There are two quizzes and midterm-exam. Instead of the final exam each student will have to chose a research topic access the data, process and analyze the data, and write a final report (see Final Report guidelines).

C. COURSE OBJECTIVES
- Understand general concepts and techniques of remote sensing concepts and techniques.
- Become familiar with remote sensing technology in terms of design and specifications of platforms and sensors.
- Acquire skills of satellite image processing and interpretation using ERDAS Imagine software.
- Conduct basic research on environmental problem using raw satellite data, process and analyze them, and write a scientific report.

D. GRADING POLICY
Attendance is 15 pts (these are earned pts by physically being in class, you do not need to report to me if you are going to miss class). Quizzes are 10 pts, midterm exam 20 pts, and final report carries 55 pts. Plagiarism is strictly prohibited (It will be reported and you get a Q grade). Late reports will be penalized 10 points per day, and please note 1hr after the deadline is regarded as a day late.

E. Textbook:

F. References:
### MAR 334 TEACHING SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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| **1** | Lect 1: Introduction  
Lect 2: Principles of Electromagnetic radiation enhancement  
Lab1: Introduction to ERDAS  
Lab2: Band combination, contrast |
| **2** | Lect 3: Principles of Electromagnetic radiation cont’d  
Lect 4: Blackbody radiation  
Lab3: Importing & subsetting  
Lab 4: Georeferencing & Mosaicing |
| **3** | Lect 5: ER interaction with atmosphere  
Lab 5: Filtering & Convolution |
| **4** | Lect 6: ER interaction with earth’s surface  
Lect 7: Platforms and sensors (design & Specs)  
Mid-Term |
| **5** | Lab 7: Supervised Classification  
Lab 9: Model maker  
Lab 8: Model maker  
Lab 10: Map Composition |
| **6** | Lab 11: Orthorectification  
Lab 12: Analysis of results |
| **7** | **Term Project** (presentation of Project Ideas) |
| **8** | **Term Project** |
| **9** | **Term Project** |
| **10** | **Term Project** |
| **11** | **Term Project** |
| **12** | **Term Project** |
| **13** | **Term Project** |
| **14** | **Term Project** |
| **15** | **Term Project Presentations** |

**Internet Connection**
1. The class schedule, homework assignments and other important information will be found on Blackboard (http://blackboard.sunysb.edu). Students are strongly encouraged to check the site at least once a day.
2. Most of the data can be obtained from the NOAA data satellite archive: [http://www.class.noaa.gov](http://www.class.noaa.gov) and MODIS website [http://modis.gsfc.nasa.gov/data/](http://modis.gsfc.nasa.gov/data/)

Americans with Disabilities Act: If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, Room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Academic Integrity: Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/uaa/academicjudiciary/

Critical Incident Management: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.

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