Geography 115C – Intermediate Remote Sensing Techniques
Spring 2014

Instructor: Bodo Bookhagen (bodo@eri.ucsb.edu)
Geog115C, Intermediate Remote Sensing, M, W 11:00-12:15 pm, EH3621
Lab: W 5-7:50pm, Star Lab, EH 2610
Office hours: Monday 1:00-2:00pm and by appointment, EH 4816

Teaching Assistant: Mingquan Chen (mingquan@umail.ucsb.edu),
Office Hours: Monday 10-11am or by appointment, Office: EH 3611

Homework email address: geog115c@gmail.com
Class website: http://www.geog.ucsb.edu/~bodo/classes.php?pg=classes#rs115c

Syllabus
1. Mar 31 (M) Review and Introduction to class projects (glacier dynamics, remote sensing of climate change)

   Lab 1: Atmospheric correction for Landsat TM, ETM+, and OLI (Landsat 8) imagery


4. Apr 9 (W) Georeferencing and Registration (Ground Control Points, Mosaicing), Orthorectification (Relief correction) Required Reading: Remote Sensing, A. Schowengerdt, 2007, Chapter 7+8, Recommended Reading: Introductory Digital Image Processing, J.R. Jensen, 2005, Chapter 7
   Lab 2: Radiance Calibration for Landsat TM, ETM+, OLI (Landsat 8) imagery


   Lab 3: Converting reflectance values to Kelvin (surface temperatures)
Apr 21 (M) no lecture, continue working on Lab 3 in the Descartes Lab (EH 3610)
Apr 23 (W) no lecture, continue working on Lab 3 in the Star Lab (EH2610)

**Lab 4: Pan-sharpening of Landsat ETM+ and OLI images and georeferencing of ASTER imagery**


**Lab 5: Automatic co-registration of Landsat OLI, ETM+, TM, MSS and ASTER imagery**

9. May 5 (M) Introduction to Digital Elevation Models (DEM) and their Applications Required Reading: *Remote Sensing*, A. Schowengerdt, 2007, Chapter 7+8

10. May 7 (W) Beyond Multispectral Remote Sensing: Interferometric Synthetic Aperture Radar (InSAR) and Gravimetric measurements

**Lab 6: Supervised Classification**

11. May 12 (M) Remote sensing of weather, water, and hydrologic patterns from space and land (TRMM, NexRAD, GRACE)

12. May 14 (W) Introduction to remote sensing and GIS data types and Vectorization Required Reading: *Remote Sensing*, A. Schowengerdt, 2007, Chapter 4

**Lab 7: NDWI and band ratios to determine lake and snow areas**

13. May 19 (M) LiDAR scanning: Practical Application (meet in the parking lot of Ellison Hall, TBA)

May 21 (W) Presentation of results from lidar scans and further point-cloud processing tools.

**Lab 8: Change detection & Vectorization (start making your posters)**

May 26 (M) no class, Memorial Day

14. May 28 (W) Lab projects: status reports & presentations (*every group presents for ~10 minutes - presentations must be sent to bodo@eri.ucsb.edu by Tuesday (May 28) at 6pm. No exceptions.*)

**Lab 9: Making posters**

15. Jun 2 (M) Lab projects 2: status reports & presentations (*every group presents for ~10 minutes - presentations must be sent to bodo@eri.ucsb.edu by Tuesday (May 28) at 6pm. No exceptions.*)


*June 3 (Tuesday) 11:30-1 pm: Poster session and CIRGIS annual meeting at the Corwin Conference Center (UCen). PLEASE NOTE that you will have to print your own posters latest on Friday, May 30.*

June 12 (Thursday), 12-3pm, Final Exam (EH 3621)

End: June 13, Finals week June 9-13 2014