

EAS 8803-AVN: Modern Geodetic Methods

THE GEORGIA INSTITUTE OF TECHNOLOGY

September 21 - December 6, 2006

Mon., Wed. 9:05 - 10:55 am in ES&T 1221/29

Instructor: Andrew Newman (anewman@gatech.edu)

<http://shadow.eas.gatech.edu/~anewman/classes/MdrnGeodMthds>

General: This course is to be a combination of lecture, discussion, and computer-based usage of many of the modern tools applied to determining and understanding ground surface deformation.

The course will specifically cover:

- Overview of traditional and advanced methods of measurement
- In detail the use of the Global Positioning System (GPS)
- Synthetic Aperture Radar Interferometry (InSAR)
- Introduction to GPS data processing to obtain sub-cm point deformation
- Introduction to InSAR processing to obtain cm-level spatial deformation
- Detailed discussions of sources of noise, including satellite orbits, atmospheric, and local ground noise
- Discussion of the theoretical background of the controls and influences of Earth surface deformation
- Computer-based analytic and 2D finite-element modeling of subsurface processes, including fault creep, earthquake slip, magmatic inflation and ground water changes

Office Hours: Hours will be held in my office, ES&T room 2254, Monday 3:00 - 4:30 pm and Thursday 10:00 - 11:30 am, or by appointment. If I am not in my office please check the Geophysics Lab (room 2235) through the corridor across from my office.

Required Text: No required or suggested text for this course.

Class Communication: You will occasionally receive class information via email to your prism account. Because this information may not be communicated in class, you should be sure to read messages identified as [EAS 8803-AVN]. In emailing me for class, please add [EAS 8803-AVN] to the subject line and if necessary identify yourself by name in the message since not all prism accounts clearly identify the email's author.

Evaluation: As the goal of this course is to train upper level graduate students for research, students are expected to come to learn in order to help better their research. Thus, there will not be rigorous evaluation of individual homework, laboratory exercises, nor exams, but on overall participation, completion of laboratory exercises, and a final research project and presentation.

Academic Honesty: It is expected that all students are aware of their individual responsibilities under the Georgia Tech Academic Honor Code, which will be strictly adhered to in this class.