

DATA ANALYSIS IN GEOPHYSICS ESCI 7205

Bob Smalley

Room 103 in 3892 (long building)

**Tu-Th 9:40-11:05, House 3
Conference room (CERI Classroom)**

Course Description

- Basics of Unix
- Basics of Shell Scripting (sh, csh)
- AWK
- Generic Mapping Tool (GMT)
- MATLAB®
- Seismic Analysis Code (SAC)
- FTP, VNC
- Other common programming languages (Fortran, C, ?)
- Web Page/HTML

Text, references

- Unix, Visual Quickstart Guide, 3rd addition
Ray and Ray, 2007.
- Awk articles online (the original Awk book -
<http://cm.bell-labs.com/cm/cs/awkbook/>)
- GMT Manual (pdf)
- SAC Manual (pdf)
- Getting started with Matlab (pdf)

Grading

- 70% homework assignments
 - homeworks for each section of the class.
 - Mathematically oriented homework assignments will use MATLAB®, no homework on C & Fortran programming.
 - Each assignment will be passed out 1-2 weeks before it is due and should be worked on throughout the given time period.
 - There will be small homework assignments with each class.
- 10 % Attendance and participation

Grading

■ 20% Final Project

- Each student will design, implement, and present a small scale programming project
- The project should utilize multiple programs and/or techniques discussed in the class. Use of SAC and/or MATLAB®, and/or GMT, as part of the project is mandatory.
- A project related to the student's own research is encouraged.
- Topic should be decided on and approved no later than Tue., Nov. 3rd.
- Presentation of results (20 mins./Powerpoint) will take place in lieu of a final exam on the last day of class - Dec., 8th.
- The project should be thoroughly documented and all scripts/programs/macros will be turned in as part of the final grade.

Class format

- Class will meet in the House 3 conference room.
- Class powerpoints will be available after class.
- Laboratories will take place in the House 3 UNIX laboratory

(Labs provide time for each student to practice the material covered in the preceding lectures and readings and answer any questions regarding the readings and homework assignments.)



Class web page

To be announced



Be nice to your system administrators

- Mitch Withers, Bob Debula and Deshone Marshall are the system administrators for CERI computers.
- Bob specializes on the Unix machines and Deshone is responsible for PC maintenance.
- They keep the computers up-to-date and running efficiently so that we may work.
- Major problems with the computers and printers should be submitted to Mitch, Bob and Deshone via the CERI computer services request form on the CERI main page.



Questions?