Geol 6315 / Geop 5356 “Advanced Seismic Methods” = Reflection & Refraction Seismic Data Processing & Interpretation

Fall 2015

Classes: Thursdays 1:30-2:50, Geology Building 302
Fridays 1:30-3:20, Geology Building 409

Contact Information
Instructor: Dr. Marianne Karplus
Office: Geology Building 317
Office hours: by appointment (unless there is high demand for a scheduled time)
Email: mkarplus@utep.edu

Overview: The main goal of this course is to give students a foundational understanding of fundamental concepts in reflection and refraction seismic data processing and interpretation. Furthermore, students will gain experience processing and interpreting real seismic datasets. We will focus on applications in oil and gas exploration as well as tectonic studies of Earth’s lithosphere.

Activities: This course will be a combination of lectures, labs, and seminars. A large amount of your learning comes from working with datasets in the computer lab and asking questions. In order to make this most useful to you, I will let you work on your own datasets when possible. We will likely use several different software packages. Remember that when you run into computer or software issues, Googling and checking the software manual can be extremely helpful!

Prerequisite: Seismic Methods or instructor approval. Class members are expected to understand basic seismology concepts. Class members should also be comfortable with basic physics and with math equivalent to at least the first semester of calculus. Talk to the instructor if you aren’t sure you have the background.

Reading list (no required text):

Exploration Seismology by R.E. Sheriff & L.P. Geldart

Introduction to Geophysical Prospecting by Milton B. Dobrin and Carl H. Savit
Library call number (old version): TN269 .S52415 1995

SEG Investigations in Geophysics no. 10: Seismic Data Analysis, vol. 1 by Oz Yilmaz
SEG; 2001, 2nd edition
Look online, e.g., SEG offers discounted e-book
Free online books! … http://sepwww.stanford.edu/sep/prof/index.html:
Geophysical Image Estimation by Example by Jon Claerbout (2014)
Basic Earth Imaging by Jon Claerbout (2010)
Imaging the Earth’s Interior by Jon Claerbout (1985)

Grading:
  20% midterm
  40% assignments
  40% final research project

Late assignments: You have one “2-day-late assignment pass”. That means that you can choose
one assignment to turn in no more than 48 hours late for no penalty. After you have used the
pass, assignments are 5% off per day that they are late. Homworks will usually be turned in
during class or at the instructor’s office.

Attendance Policy and Exam Makeup Policy: This is a graduate level class. I assume this is a
nonissue at this level. However, no makeup exams without prior approval, except in emergency
situations.

Academic Integrity and Civility: Refer to http://sa.utep.edu/osccr/academic-integrity/ for the
university’s academic integrity policy; Plagiarism will not be tolerated on any assignments, and
any assignment containing clear plagiarism given an automatic F.

Disability Statement: If you have a disability and need accommodation, you should contact the
Disabled Student Services office at 747-5148 or got to Rm 106 Union East. You are responsible
for obtaining accommodation letters and instructions.

Travel and other commitments: If you have research or work-related travel or other important
commitments, please advise the instructor well in advance and we’ll work out an accommodation
if possible.