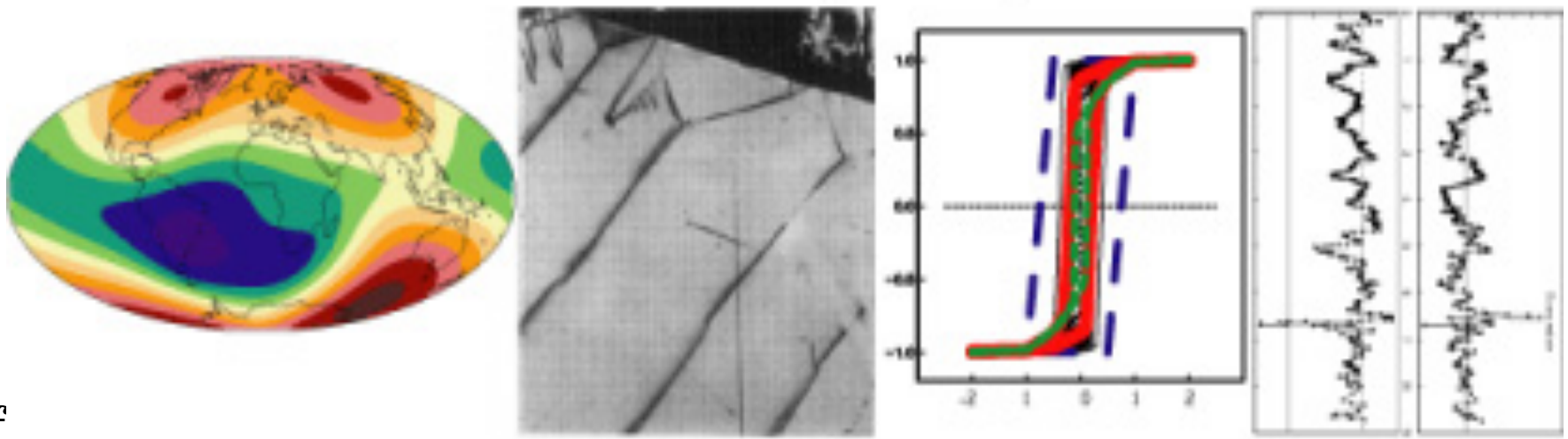


SIO 247: Rock and paleomagnetism



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Syllabus

Instructor:

Lisa Tauxe, 300E Ritter Hall, 858-534-6084, ltauxe@ucsd.edu, <http://scrippsolars.ucsd.edu/ltauxe>

How to take this class:

Attend each lecture listed below either live in class or [online](#), or listen to the recording online. Lectures will be 10:30-11:50 am PST in 229 Ritter Hall.

Do the required reading in the textbook, [Essentials of Paleomagnetism](#). Don't just skim the reading for clues to answer the homework - read the entire assigned part with concentration.

Work the assigned problems and e-mail a zip file with the ipython notebook and all necessary datafiles in it to ltauxe@ucsd.edu. Problems are due the week after they are assigned - but don't procrastinate! The purpose of these assignments is to allow you to work through the lecture and reading material in an active way. You may consult with your fellow students, but the work you turn in must be your own. Don't just copy or modify answers from others, including handouts from previous classes - that is not what this class is about and will be considered cheating. Students suspected of cheating will be reported to the Academic Integrity Office.

In addition to the homework assignments (30%), there will be a midterm (30%), a final project (30%), and one mandatory but totally fun field trip on **Feb 14th** (10%).

Date	Lecturer	Topic	Reading	Assignment	Lecture/Recording (if available)
Jan. 5	Tauxe	Class overview	PmagPy Cookbook , Chapter 1,3	Install Python and PmagPy package, find your command line and verify installation US	Lecture01.pdf

Jan. 7	Tauze	Python Crash Course	PmagPy Cookbook Chapter 6/7	Write your first script using IPython notebook	Lecture02.pdf
Jan. 12	Tauze	Physics of Magnetism	Essentials, Chapter 1	Problems 1.1, 1.2 & 1.4 Solution	Lecture03.pdf recording
Jan. 14	Tauze	The Geomagnetic Field	Chapter 2	Problems 2.1, 2.2 Solution	Lecture04.pdf recording
Jan. 21	Tauze	Magnetism at the Atomic Level	Chapter 3	Problems 2.3, 3.1 Solution	Lecture05.pdf recording
Jan. 26	Tauze	Magnetic energy, domains, and hysteresis	Chapters 4, 5	Problem 4.2, 5.2 Chapter 4 Solution Chapter 5 Solution	Lecture06.pdf recording
Jan. 28	Tauze	Magnetic Mineralogy	Chapter 6	Problems 6.1 & 6.2 Solution	Lecture07.pdf recording
Feb 2	Tauze	Natural Remanences	Chapter 7	Problems 7.1, 7.2 try without a template!	Lecture08.pdf recording
Feb 4	Tauze	Getting a magnetic vector	Chapter 9	Problems 7.4, 9.1 and 9.6 you don't need a template!	Lecture09.pdf recording

Feb 9	Tauxe	Applied Rock Magnetism	Chapter 8	Problems 8.1, 8.3 template	Lecture10.pdf recording
Feb 11	Tauxe	Midterm			
Feb 14		Special Saturday Field Trip		Meet in Sverdrup Lot at 8am	
Feb 18	Tauxe	Paleomagnetic data analysis - Fisher statistics	Chapter 11	Problem 11.1	
Feb 23	Tauxe	Monte Carlo simulation and bootstrapping in paleomagnetism	Chapter 12	Problems 12.1, 12.2 and 12.3.	
Feb 25	Tauxe	Anisotropy in paleomagnetism	Chapter 13	Turn in a 2 page proposal for your final project.	
Mar 2	Tauxe	Paleointensity	Chapter 10	Problem 10.1	
Mar 4	Tauxe	The ancient geomagnetic field - intro, Paleosecular variation, Reversals and Excursions	Chapter 14	Problem 14.1	
Mar 9	Tauxe	The Geomagnetic polarity time scale, Magnetostratigraphy	Chapter 15	Problems 15.1 & 15.2	
Mar 11	Tauxe	Poles and apparent polar wander, Plate tectonic reconstructions	Chapter 16	Problem 16.5	
Mar 20	students	Student presentations - 15			

**min powerpoint on
your final project**
