SIO 16 - Geology of National Parks
Spring 2014 Syllabus

Lectures: M,W,F 3:00-3:50 in Thurgood Marshall 102
Instructor: Jeff Gee (jsgee@ucsd.edu; x44707) *TA*: Michelle Bibbins
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Textbook: Lecture notes, Powerpoint slides and links provided on Ted will cover the essential material. There is an optional textbook, Geology of National Parks (Harris, Tuttle, and Tuttle) that may be useful for background reading.

Office hours: York 3030 on Wednesdays and Thursdays 4-5 pm. I'm happy to schedule additional times as needed.

Overview: Ever wondered why there are so many geysers in Yellowstone, how the sandstone arches in Arches National Park form, or why there are all those rounded boulders at Joshua Tree National Park? In this class, we'll explore how geologic processes control the landscapes and features in our parks and along the way learn about the concepts of geologic time, plate tectonics and how the rock record can be used to reconstruct the geological story of the parks.

Grading: Grades will be based primarily on two hour exams (45% total) and the final exam (35%), which will be cumulative but weighted toward the material after the second exam. The remaining 20% of the grade will come from homework assignments. The homework assignments will typically be posted on Mondays of weeks where no exam is scheduled and will be due on the Friday of that same week. I encourage you to come to office hours for help with the homeworks. You are free to work with others on the homework assignments, though everyone must write up and turn in his or her own work. Identical answers (i.e. word for word copies) will result in a grade of 0 for both papers.

Field Trips: We will have two optional field trips that will reinforce some of the concepts we will be discussing in class. The first of these will be a ~2 hour trip on Saturday April 26 where we will look at some of the local sedimentary rocks near the Scripps pier. The second field trip will be an all day trip to Joshua Tree National Park on Saturday May 31.

Date	Topic	Reading
March 31	Grand Canyon - a geologic view of time	1
April 2	Interpreting the Grand Canyon sedimentary record	
April 4	Grand Canyon - relative time in the geologic record	
April 7	Grand Canyon - uplift and canyon incision	
April 9	Weathering and erosion (Zion)	2
April 11*	Weathering and erosion (Arches, Canyonlands, Bryce)	6,5,3

April 14	Introduction to plate tectonics	
April 16	Basaltic volcanism at Hawaii	40
April 18*	Hotspots and the Hawaiian volcanic chain	
April 21	Cascade volcanoes and the Pacific Ring of Fire	35
April 23	Exam 1	
April 25	Cascade volcanoes (Mt. St. Helens, Crater Lake)	36
April 26	Local field trip (1:00-3:00 p.m.)	
April 28	Cascade volcanoes (Lassen, Rainier)	37
April 30	Seafloor spreading and convergent margins (Olympic)	30
May 2*	Yosemite and the Sierra Nevada	28
May 5	Yosemite and the Sierra Nevada	
May 7	Yellowstone - continental hot spot	43
May 9*	Yellowstone - geysers and hydrothermal activity	
May 12	The Rocky Mountains (Rocky Mountain)	25
May 14	The Rocky Mountains (Grand Teton)	44
May 16*	The Appalachian Mountains (Acadia, Great Smoky, Shenandoah)	24,54
May 19	Exam 2	
May 21	The Appalachian Mountains	55
May 23	Joshua Tree National Park	47
May 26	Memorial Day	
May 28	Death Valley NP and the Basin and Range	48
May 30*	Death Valley NP	
Saturday May 31	Day trip to Joshua Tree National Park	
June 2	Glaciers and ice ages (Waterton-Glacier, Glacier Bay)	26,31
June 4	Alaska parks (Denali, Katmai)	34,38
June 6	Groundwater and caves (Mammoth, Carlsbad)	14,16

Final exam: Wednesday, June 11; 3:00-6:00 p.m.

* Homework due. Homework assignments will be posted on the Monday before the due date.