

COASTAL GEOLOGY
Winter 2019: Tues/Thurs 11:40-1:15 – E&MS B-214

Gary Griggs (griggs@ucsc.edu) E&MS A-361
Office hours: Tues/Thurs: 9:00 - 11:40,

Texts: *Introduction to California's Beaches and Coast (CBC)*; *Littoral Cells, Sand Budgets, and Beaches: Understanding California's Shoreline (LC)*

DATE	TOPIC	READING
Jan 8	Introduction: coastal landforms & processes	CBC Intro. 1
Jan 10	Coastal classification and evolution; tectonics and coasts	CBC 1
Jan 15	Tectonic geomorphology-marine terraces	CBC 2
Jan 17	Climate change and sea level	CBC 3
Jan 22	Temporal and spatial differences in sea level	CBC 3
Jan 24	Future sea-level rise- impacts and adaptation	CBC 3
Jan 29	Marginal marine environments; estuaries, lagoons, wetlands, and environmental issues	
Jan 31	Coastal dunes; human impacts on dunes Midterm- second half of class	CBC 5
Feb 5	Waves: formation, propagation; tsunamis	CBC 4
Feb 7	Waves at the shoreline: refraction, reflection, diffraction; interference	CBC 4
Feb 12	Beaches: materials and morphology; Movement of sand on beaches	CBC 5/LC
Feb 14	Beach compartments/littoral cells; sand budgets; Sand sources, littoral drift, sand sinks	CBC 5/LC
Feb 19	Human impacts on littoral cells; dams and armor	CBC 5/LC

Feb 21	Coastal Engineering: breakwater, jetties, groins	
Feb 26	Beach nourishment: retention and losses	LC
Feb 28	Coastal Erosion: types, processes and rates	CBC 7
Mar 5	Responses to coastal erosion: armoring	CBC 7
Mar 7	Coastal armoring: effectiveness & impacts	CBC 7/ LC
Mar 12	Coastal Consulting: Case Studies	
Mar 14	Coastal Consulting: Coastal planning and policies; the California Coastal Commission	
Mar 21	Thursday 8:00-11:00 am FINAL EXAMINATION	

COASTAL GEOLOGY LABORATORY

Teaching Assistant: Sky Smith (scansmit@ucsc.edu)

Lab Sections: Wednesday 8:45-11:45 (D-258); Friday 12:00-3:00 (D-258);

Week 1: Oct. 9/13	Introduction to aerial photo interpretation
Week 2: Oct 16/20	Mapping marine terraces on topographic maps
Week 3: Oct 23/27	Field Trip- Coastal geology & marine terraces
Week 4: Oct 30/Nov 3	Sea Level & tide gauges
Week 5: Nov 6/10	Waves and wave gauge records
Week 6: Nov 13/17	Sand Dunes on the Central Coast
Week 7: Nov 20/24	West Cliff Drive Field Lab: Erosion & Protection
Week 7: Nov 27/Dec 1	Sea cliff erosion rates