

SYLLABUS

Oceanography: The Hawaiian Pacific

Day 1	Objective/Topic	Activities
Morning	Course Overview, Paperwork, Classroom rules Pre Assessment - Earth's History	Mini Lecture - Reading
Afternoon	Ocean Exploration and Oceanography History	Group discussion, timeline putting together + hand out filling
Evening	Icebreaker and name tags for the wall Earthquakes and volcanoes Plate tectonics	Plotting Activity in groups of 4 + class discussion Reading of chapter in Bill Bryson Sandbox demonstration with handouts to fill in
Day 2	Objective/Topic	Activities
Morning	Kaholo Fieldtrip preparation	Presentation of Kaneohe bay (Bathymetry, mammals..) GPS exercise
Afternoon	Kaholo Fieldtrip preparation	Equipment presentation w/ Dr. Winn
Evening	Bathymetry	Sonar activity and realization of a cardboard profile Contour lines on clay model
Day 3	Objective/Topic	Activities
Morning	Tectonics and Deep ocean Tectonics and other plate boundaries, Hawaii	Lecture (tectonics, deep sea features) Mysteries of the Hawaiian Islands in group (Part 1)
Afternoon	Tectonics and other plate boundaries, Hawaii Hawaii: formation	Part 2 + Class sharing Video: born of fire
Evening	Field trip preparation Deep Ocean: Biology and adaptations	Parameters to be measured Lecture and hand out Video: The Deep (Blue Planet) start
Day 4	Objective/Topic	Activities
Morning	Makapu'u Beach Field trip	Makapu'u Field Lab
Afternoon	Makapu'u Beach Field Trip	Makapu'u Field Lab
Evening	Debriefing of beach trip Sediments Deep Ocean	Class discussion Mini lecture and Candy Lab (origin and location of sediments) End of The Deep video
Day 5	Objective/Topic	Activities
Morning	Physical and geological parameters Lab session	Lab: Currents, Deep-sea volcanoes, Pressure, Convection
Afternoon	Wrap-up of Lab exercises Atmospheric and oceanic circulation	Class discussion, questions Lecture (currents diagram + plotting activities)
Evening (Sun)	End of Week 1 Quiz Sediments	Paleoreconstructions activity with diatoms

Day 6	Objective/Topic	Activities
Morning	Waves, Tsunamis and Tides Waves, Tsunamis and Tides	Lecture and Video: Making the call, Big waves of the Pacific Ocean Tsunami activity
Afternoon	Sediments Lab Session	Lab: Sand observation
Evening	Waves, Tsunamis and Tides Lab wrap-up and field trip preparation	Tides (mini research and effect of tides on life (video) start)

Day 7	Objective/Topic	Activities
Morning	Field Trip: Kaholo / Oceanic Institute (OI)	Water, plankton and sediments sampling, CTD measurements
Afternoon	Field Trip: Kaholo / Oceanic Institute	OI tour + submersibles
Evening	Fieldtrip debrief + End of tides movie Seawater Physics and Chemistry	Dive into the deep activity: depth profiles

Day 8	Objective/Topic	Activities
Morning	Seawater Physics and Chemistry	Lab: Temperature, Salinity, Density
Afternoon	Seawater Physics and Chemistry	Wrap-up of the Lab session Lecture and surface salinity map to color
Evening	Seawater Physics and Chemistry Fish Field-Trip Preparation	Thermohaline circulation (end of afternoon lecture) Dive into the deep activity (End) Reef Fish ID (slide show) Snorkel and vest demo

Day 9	Objective/Topic	Activities
Morning	Haunama Field Trip	Snorkeling
Afternoon	Haunama Field Trip Fish	Return at 1.45 Research on fish in the library
Evening	Fish	Lecture Poster preparation on fish (continued)

Day 10	Objective/Topic	Activities
Morning	Coral Reefs: cnidarian, symbiosis Coral Reefs: formation, zonation, past and ID	Lecture / Fill in and Color Hand outs / Video Exerpts Computer game as a class
Afternoon	Coral Reefs zonation Research Cruise Project presentation	Images in groups in the computer lab: terrace vs lagoon Cruises slide show and Expeditions outlines to be validated
Evening (Sun)	End of week 2 Quiz Expeditions Project Research Fisheries	Computer Lab Sharkwater video

Day 11	Objective/Topic	Activities
Morning	Waikiki Aquarium Field Trip	
Afternoon	Waikiki Aquarium Field Trip / Fish research projects	End of poster prep and poster presentations
Evening	Expeditions projects Research Fisheries	Computer Lab Sharkwater video

Day 12	Objective/Topic	Activities
Morning	Marine invertebrates and Vertebrates Dissections	Lab: Shark, Fish, Squid, Starfish and Blue Crab
Afternoon	Fisheries and resources	Tragedy of the commons and Shark water (continued 20')
Evening	Expeditions Research Projects	End of prep and presentations in front of panel

Day 13	Objective/Topic	Activities
Morning	Respiration, Photosynthesis and env. Control	Lab: Shrimp, Goldfish and macroalgae + water analysis
Afternoon	Laboratory reports Life in the ocean realm: from plankton to nekton	Respiration calculations, impact of temperature Lecture and sketch of planktons for the plankton race
Evening	Review and post assessments Creation of the planktons for the race	

Day 14	Objective/Topic	Activities
Morning	Aquarium Seahunt worksheet + Plankton race HPU Lab Kaholo Data Analysis	CTD
Afternoon	SPE's HPU Lab Kaholo Data Analysis (end)	Student evaluations Plankton samples and oxygen

Day 15	Objective/Topic	Activities
Morning	Unformal Course evaluation/Classroom cleaning	End of Sharkwater video
Afternoon	Travel Day	