

ENVS 270L: Marine Ecology

Ecological interactions between specific marine habitats and their biological communities. Includes field trips to local marine environments. (E)

Course Student Learning Outcomes

1. Describe basic structure of the earth's core, mantle and lithosphere.
2. Describe continental drift and orogenesis.
3. Describe how seafloor spreading affects continental drift.
4. Describe the continental shelf's slope and rise.
5. Fix, preserve and label marine specimens.
6. Use dissecting and compound microscopes.
7. Use fisheries devices used to measure fish.
8. Key both vertebrate and invertebrate aquatic species.
9. Describe upwelling and how it affects fishery production.
10. Describe nutrient cycles in the ocean.
11. Describe major ocean currents and how they affect biological communities.
12. Describe how primary productivity is affected by limiting factors.
13. Describe osmotic stress at the cellular level.
14. Describe different reproductive strategies in the sea.
15. Describe the National Shellfish Sanitation Program and classification of growing beaches.
16. Describe various methods of measuring primary productivity.
17. Identify pennate and centric diatoms
18. Describe how plants and animals compete in the intertidal.
19. Recognize the major invertebrate phyla found in the ocean.
20. recognize common algae and sea grasses of the Pacific Northwest.
21. Describe how major phyla of invertebrates compete and interact.
22. Describe how invertebrates help modify and regulate their environment.
23. Describe major organ systems in a bivalve.
24. Describe various feeding strategies associated with marine invertebrates.
25. Identify commercially important species of bivalves and arthropods.
26. Describe in general terms how protein electrophoresis is used to identify fish and marine invertebrates.
27. Collect, speciate and enumerate benthic infauna.
28. Identify commercially important fishes in the Pacific NW.
29. Describe trophic structures and how structure reveals feeding habits.
30. Describe reproductive strategies of salmon, halibut, American eels.
31. Describe where commercial fisheries take place in the ocean.
32. Describe why the continental shelves are so important to world fisheries.
33. Describe the factors currently affecting Pacific NW salmonid resources.
34. Describe the interdependence of trophic levels in ocean environments.
35. Describe the numbers, biomass and energy pyramids.
36. Describe the different types of symbiosis.
37. Describe the stresses associated with different (intertidal, estuarine, oceanic, benthic) environments.

38. Describe how substrate type affects the infaunal community present.
39. Describe the physiological adaptations to different substrates (soft, rocky, vegetative, etc.)
40. Describe the redox potential discontinuity, bioturbation, sediment grain size and the effect these factors have on invertebrate communities.
41. Describe the feeding habits (filter, detritus, predator, grazer, suspension, etc.)
42. Describe the various types of anthropogenic insult
43. Describe in general terms, the effects of overfishing.
44. Describe efforts to reduce pollution.
45. Describe how shoreline development effects carbon and sediment flow.
46. Compose a 7-page written technical report on some aspect of marine ecology. Each report must include a minimum of two graphs or tables.
47. Give a ten minute talk on the same subject as the written report.
- 48.

Credits: 5

Prerequisites: Eligibility for both ENGL& 101 and MATH 090/091

Program: **Environmental Science**