

ECL 0335 Techniques Marine Research I

DESCRIPTION AND OBJECTIVE

Students will immerse in the process of scientific research, from the basics, including the scientific method to the production of scientific papers and proposals. Students will learn how to collect and handle observations and data, from those observations formulate hypothesis and develop methods and techniques to test those hypotheses. Students will learn how to use statistical programs and routines to explore data, analyze and interpret the patterns observed.

This course includes a strong component in the field, monitoring a set of marine communities, including rocky shores, corals and hard bottom benthic communities. During our field trips to the coast students will monitor the diversity of such communities with the development of techniques and methods to describe the abiotic environment (temperature, wave action, water flow, pH, salinity, substrate profile and complexity) and the biological diversity associated with these conditions.

During the second field trip the class will be focused on scientific diving. We will train students to conduct scientific diving on fragile coral reef communities. Activities will include determining the strength of ecological interactions by analyzing underwater video surveys of grazers and predators feeding. Monitoring ecological experiments by studying the role of grazers on coral growth and algal diversity.

After the culmination of this class students will be better suited to conduct marine research, to assist other professors in their research at the coast and at the Galapagos Islands and to produce scientific reports with the quality of a scientific paper or proposal.

OBJECTIVES:

- (1) Learn to conduct scientific research using the scientific method
- (2) Learn techniques to conduct research in the marine environment
- (3) Acquire analytical skills to manage and interpret data
- (4) Learn how to write scientific papers and proposals