Overview

Dartmouth's Tropical Biology Program (Bio FSP) is an intensive, 10-week research-oriented program in ecological and evolutionary biology, offered in Central America and the Caribbean each winter quarter. The first 6-7 weeks are spent in Costa Rica at 4-5 field research stations, some of which are operated by the Organization for Tropical Studies (OTS), a consortium of Latin American and North American universities devoted to tropical research and education. These stations and other field sites provide access to lowland rain forest, dry seasonal deciduous forests, montane cloud forests, and high elevation paramo, as well as to tropical agricultural and forestry operations. At these sites, students learn to interpret the great variety and complexity of tropical habitats and their associated flora, fauna, and climatic features. The final third of the program is in the Cayman Islands, at the Little Cayman Research Center. There the focus is on marine biology, especially coral reef ecology. Students do research on sea grass meadows, plankton and fish communities. Habitats are shallow patch reefs and the fringing reef, from its crest to about 60 feet depth. We use small boats, snorkeling and SCUBA to access these habitats.

Program Format

The Tropical Biology Program exposes students to a diversity of tropical environments. They study theory, quantitative methods and research design, and apply them to projects in tropical biology. At the field sites our daily schedule includes lectures, laboratories and field trips, as well as research projects by individuals or small groups. Students become familiar with the flora, fauna and functional complexity of tropical ecosystems. Applying the scientific method to these systems is a demanding, creative, and ultimately a very satisfying experience. Students develop the ability to organize observations, formulate testable hypotheses and develop methods to test them quantitatively. They learn to work both independently and cooperatively, and to prepare seminars and written reports. The development of students' scientific skills is demonstrated in the course proceedings "Dartmouth Studies in Tropical Biology", published annually, and available in Dana Biomedical Library and the Biology Department office.

The tempo of the Program is fast, and the work intensive. Course participants, both students and faculty, are engaged in scheduled activities from dawn to dusk, and also in the evenings (generally 7-10 pm). Evenings are devoted to faculty lectures, student seminar presentations (on their research results), and student critiques of papers from the literature. Students are totally immersed in the course work during the time at the field stations, and become deeply involved in field studies, in ways not possible in Hanover. They generally respond well to the intensive format, as indicated by student comments in the course evaluations, e.g. "Keep the intensity, keep the high expectations, and definitely keep the level of independence." The field station setting allows for scheduling of class activities to fit biological rhythms, rather than academic conventions. As a result, we are able to take advantage of such activities as predawn field trips, late evening labs, and night dives on the coral reef.
Selection of Students
Most participants in the Program are in their junior or senior year, majoring in biology. However, students in all majors are eligible, as long as they have the prerequisites (see below). Selection of students is based on their motivation for in-depth learning in ecology, as demonstrated in their lab/field courses and research experience, as well as academic performance and letters of recommendation. All applicants are interviewed by the faculty teaching in the program. The prerequisites for acceptance into program are Bio16 (Ecology) and one course from among Bio 21–28, 31, 53. Bio 15 and Bio 29 are recommended.

The size of the student group (maximum 17) is determined by accommodations at field stations and by the number that can be accommodated in projects at field sites. One-on-one contact between faculty and students is essential in meeting our educational objectives. Each year, we have more applicants than we can accept, so entry is competitive. Knowledge of Spanish is recommended but not required. Students not accepted for the winter of their junior year are encouraged to re-apply for their senior year.

Teaching Faculty and Graduate TAs
The program is taught by three Dartmouth biology faculty, who rotate over the term, each of whom stays with the group about 4 weeks. The Biology FSP Director is David Peart. Faculty currently teaching in the program, listed with their special interests, are: Matthew Ayres (plant-animal interactions, physiological and population ecology); Rebecca Irwin (pollination ecology, community ecology); David Peart (forest dynamics, coral reef ecology, biological diversity) and Brad Taylor (behavior, species interactions and ecosystem processes in aquatic systems). The faculty teaching in the Costa Rica overlap for at least several days to ensure continuity. At present, Ayres, Irwin, Peart and Taylor teach in Costa Rica (two faculty each year), and Peart teaches at Little Cayman.

The faculty are assisted by two Dartmouth graduate student teaching assistants (TAs), who make important contributions to the teaching, logistics, and social dynamics. The graduate students benefit by gaining valuable experience in research and teaching, and also provide an important link between the Costa Rica and Little Cayman sections of the program.

Finances
As for most Dartmouth off-campus programs, the participating students pay tuition and room/meals costs that are the same as they would pay on campus. The only significant additional costs for this Program are (1) air travel to and from Costa Rica and Little Cayman, and (2) equipment for snorkeling and SCUBA (SCUBA is optional).

Summary
The Dartmouth Tropical Biology Program encourages students to reach beyond their familiar surroundings and consider the broad organizing principles of environmental and evolutionary biology. For many students, the Tropical Biology Program is a capstone experience and highlight of their Dartmouth education, and one that helps them to make choices for further study and professional training. These quotes from recent student evaluations are fairly typical: "Best term ever", "... one of the most amazing experiences I have ever had.", "...incredibly satisfying and rewarding", "The best experience of my academic career at Dartmouth."

**Entering students interested in the Bio FSP are strongly encouraged to consider taking Bio 11 in the fall or winter and then take Bio 16 in spring of their first year.**