Supplementary Materials

Elon University Field Biology Panama (BIO 335)

Pre-course preparation: Students met once a week during Fall 2018 for a one credit hour preparatory course, in which they developed their knowledge of tropical ecology, the kinds of research questions that ecologists study in the neotropics, and background and aims of the professional research program at STRI BCI. Students also reviewed geography, history, and culture of the regions in Panama where they would be traveling and developed reflective prompts to guide their journal entries while in Panama. To achieve these aims, students completed readings, watched videos, and completed online quizzes prior to in-class meetings. Students addressed questions on assigned readings in facilitated small and large-group discussions, gave oral presentations of peer-reviewed research papers in tropical ecology, and met for a Q&A with Panamanian students currently enrolled at Elon University.

Course module locations and details: First day orientation activities occurred in Panama City and included visits to cultural and historic sites, lectures on cultural differences between the U.S. and Panama, and a lecture on health and wellness in tropical contexts. Forest ecology lectures and activities occurred over three days in the portion of La Amistad International Park located in the Chiriquí province, and students lived with families in the nearby agricultural community of Cerro Punta. During the forest ecology module, students also visited two NGOs to learn about conservation challenges faced by different stakeholders in the Chiriquí Province. Coral reef ecology activities were conducted over three days at Boca del Drago on Isla Colón in the Bocas del Toro archipelago, and avian ecology activities were conducted over three days in Gamboa, at

Soberanía Lodge and in Soberanía National Park. The insect behavioral ecology module was conducted over five days at STRI BCI, and logistical support for this course module was coordinated by the authors with assistance from STRI. Instruction for this module was developed and provided by the authors.

Dartmouth College Biology Foreign Study Program (BIOL 55, 56, 57)

Pre-course preparation: The Dartmouth students enroll in the Biology Department's Foreign Studies Program and receive credit for three courses during the winter term (BIOL 55, 56, 57). The program is taught by three faculty members, each of which teach three weeks of the nine-week program, corresponding with the three courses of the program. The first two courses are in tropical ecology and take place in Panama and Costa Rica. The third course is marine biology and takes place on Little Cayman Island. Prior to acceptance into the program, each student submits an application and attends an interview with faculty, and students are accepted on a competitive basis due to limited spaces. A prerequisite course for the program is the Dartmouth Foundation Course in Ecology, which provides the background ecological knowledge for the program. Students with additional ecology courses and a course in statistics are given priority for admission to the program. Students receive regular emails with logistical, health and safety and other practical information in the six months leading up to the program. During the term before departure, there are three group meetings with the instructors to provide detailed information and answer students' questions about the program. The faculty also arrange a social event in the term before departure attended by the previous year's students for peer-to-peer information exchange about the program. Students are assigned readings about tropical and marine biology to be completed before the start of the program.

Course module locations and details: The itinerary in Costa Rica was two days in San Jose, where students received orientation from staff at OTS and visited the Museo Nacional de Costa Rica for cultural orientation, six days at the Palo Verde OTS Research Station (a seasonal dry forest), two days at Santa Rosa National Park (beach on the Pacific coast), six days at Monteverde Biological Station (cloud forest), six days at Cuerici Biological Station (high elevation site near the Cerro de la Muerte), seven days at Campanario Biological Station (lowland rainforest on the Osa Peninsula), four days at Las Cruces Biological Station (location of the Wilson Botanical Gardens), and one day in San Jose.

On the first day at each location, students were introduced to the unique features of the environment by hiking with a local guide. Students were encouraged to observe their surroundings and think about questions that arose from their observations. In the evening of the first day, the faculty facilitated a brainstorming session about potential research questions. The following morning, in a group meeting with all faculty and students, students identified the projects in which they were most interested, formed groups and proposed an experimental design. The remainder of the day students collected pilot data. In the evening of the second day there was usually another complete group meeting to see how projects were progressing. Students sometimes changed projects at this time. For the remainder of the four days at the location, students would work independently on their projects, consulting with faculty members as needed. On the last night at each location, there was a "research symposium" in which each group presented their project, following the structure of introduction, methods, results and discussion sections and illustrating key data figures on a whiteboard. Students and faculty

provided feedback on projects during the symposium. At the next location, the process started again. At the same time, students wrote a manuscript of the project from the previous location, which was submitted and returned with feedback from faculty and often went through 3-4 revisions before being “accepted for publication” in the course journal. The results of student projects are disseminated by publishing the course journal as both a hardcopy book available in the biology department and also as a pdf available for download from the biology department website (https://biology.dartmouth.edu/foreign-study/books-publications-and-guides).