

# A Short-Term Study Abroad Course in Costa Rica

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## Abstract

Short-term study abroad programs are increasingly popular but their relative brevity makes it difficult to both successfully convey discipline-specific content and provide students with a meaningful cultural experience. Purdue University students participated in a 15-day course in Costa Rica in 2006 and 2008. Journals, group discussions, and a questionnaire administered at the end of the course were used to evaluate course impact on student comprehension of course material and interest in pursuing additional international experiences. Students agreed or strongly agreed that the course increased their knowledge of cropping systems and race and culture in Costa Rica and of the importance of biodiversity in agriculture. Journal entries and group discussions supported this self-assessment. At least 90% of the students agreed or strongly agreed that the course increased their interest in international agriculture and their interest in participating in another study abroad course. Seven of 19 eligible students (37%) subsequently participated in an additional international research or education program after completing the course. This paper describes the experience and provides prospective programs with a blueprint for implementing similar short-term international agriculture courses with a substantial field-work component.

## Introduction

During the past decade, universities in the United States have placed great emphasis on study abroad programs as a mechanism to promote international

understanding and to prepare students to compete in a global marketplace. As the popularity of these programs has grown, their average duration has decreased (Dwyer, 2004). For example, of approximately 260,000 students that participated in study abroad programs in 2008/2009, more than half were enrolled in programs that could be completed in eight weeks or less (IIE 2010a). Short-term programs are an attractive alternative for students who are unable to spend longer periods of time studying internationally for financial and/or other reasons. Also, short-term programs allow students who have not traveled internationally, flown in an airplane, or who may have never left their state to participate with less anxiety about traveling abroad. Furthermore, although the relatively brief duration of short-term study abroad programs can limit the scope of topics addressed, students can build upon their experiences by pursuing additional international activities after the initial study abroad program concludes. A key goal for short-term study abroad programs at Purdue University is to encourage students to engage in additional international experiences, preferably ones that require students to stay abroad for eight weeks or longer. Despite the popularity of short-term programs, there are relatively few articles that describe how to successfully manage a program (Sachau et al., 2010).

The need for agricultural programs to provide college students with an international perspective and greater experiential learning has been noted by several organizations (NRC 2009; APLU 2009).

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Experiential learning is not synonymous with study abroad; the experience of visiting a new culture does not necessarily lead to new knowledge (Lutterman-Aguilar and Gingerich, 2002). Experiential learning requires learners to reflect on and critically analyze their experience (Kolb, 1984). This learning may be further enhanced if students are presented with or identify a particular problem in the host country (Lutterman-Aguilar and Gingerich, 2002). Providing food and fiber to a world population that will exceed eight billion people by mid-century without further depleting natural resources, damaging ecosystems, or decreasing biodiversity represents a “grand challenge for agriculture” (Robertson and Swinton, 2005). Directly observing different strategies used to address this challenge and reflecting on the economic, social, and cultural factors that influence decisions to adapt a particular strategy may provide powerful opportunities for experiential learning.

The purpose of this research was to assess the impact of a short-term, field work intensive, course on student understanding of interactions among crop production systems and biodiversity, perceptions of race and culture in Costa Rica, and interest in pursuing additional international learning activities.

## Methods and Materials

The College of Agriculture at Purdue University offers several short (2 to 4 weeks) international programs known as “Maymester” courses that give students the opportunity to travel with faculty to foreign countries. Eighteen and fourteen Purdue University students participated in a 15-day course in Costa Rica in 2006 and 2008, respectively. Students were accepted into the course based on their GPA and letters of recommendation; entry into the course was not restricted by major or by fluency in Spanish.

The course had two major phases. In the first phase, students participated in a mandatory one credit-hour course entitled: Topics in Tropical Agriculture. This course was taught at Purdue University in spring semester and was designed to provide students with a background in tropical ecosystems, agriculture in the tropics, and the culture and history of Costa Rica. Enrollment in the course was limited to students who had been accepted for the Costa Rica trip. In addition to attending lectures given by faculty, students worked in small groups (3 to 4 students) to develop presentations on natural ecosystems, government and political parties, education, history, and culture in Costa Rica. These group projects were designed to promote group cohesion, transfer the responsibility of learning from the instructors to the students, and

to develop “student experts” on selected topics who could contribute information while in country. Each group was also required to write a 15-page paper on their assigned topic.

In the second phase, faculty and students traveled to Costa Rica for the 15-day course. Costa Rica is the 10th most visited country by study abroad programs in the United States and, other than Mexico and China, is the only country outside of Europe or Australia in the top ten (IIE 2010b). Costa Rica was chosen as a destination country for several reasons. First, Purdue has a partnership with CATIE (The Tropical Agricultural Research and Higher Education Center, Turrialba, CR) that allowed us to rely on in-country expertise and connections. More specifically, we relied on CATIE to use their connections to arrange visits to farms and ranches. Second, the high diversity of both natural and agricultural systems allowed students to directly observe many different production systems in a relatively short period of time and over small distances. Third, heterogeneous cultures (indigenous, African-Caribbean, Spanish) and challenges with immigration, particularly from Nicaragua, provide a framework for discussions on race and cultural issues. Finally, because Costa Rica has a particularly strong tourism industry, receiving more than one million visitors per year with a general population of around four million, there is considerable infrastructure available for visiting groups. While this makes visiting Costa Rica logistically easy, it can also create a mindset in students that they are on vacation. To limit this impression we avoided tourist “hotspots” and stayed in hotels typically used by Costa Ricans.

Students participated in four primary learning activities while in Costa Rica: field sampling, completion of written assignments, direct interaction with farmers, and group discussions. Students were encouraged to record their daily experiences and were also required to address three topics in a journal including: the value of biodiversity in agricultural systems, their impressions of race and culture in Costa Rica compared to the United States, and a discussion of the potential benefits and drawbacks of payment for environmental services in agriculture. Journals were collected, read and critiqued every three or four days by faculty. Evening discussions among faculty and students were scheduled to allow students to write about their experiences before analyzing major topics as a group. This process followed Kolb’s “learning cycle” model in which students experience an environment, reflect on their experience, and then analyze the experience (Montrose, 2002).

Systems visited included organic and conventional

**Table 1. Mean Scores for Course Evaluations from Student Cohorts in 2006 and 2008 for the Costa Rica Course (Students completed the evaluations after the course ended in both years. To ensure student anonymity, the evaluations were not viewed directly by course instructors. Return rates were 50% and 79% in 2006 and 2008, respectively.)**

	2006	2008
Overall, I would rate this course as <sup>2</sup>	4.6	5.0
This course increased my interest in participating in a Semester Abroad program or other international experience <sup>3</sup>	4.6	4.7
This course increased my interest in international agriculture	4.8	4.5
This course increased my knowledge of cropping systems in Central America	4.4	4.8
This course increased my awareness of trade between United States and Central America	3.9	4.2
This course increased my understanding of the importance of biodiversity in the tropics	4.7	4.9
This course increased my understanding of race and culture in Costa Rica	4.8	4.4
This course increased my understanding of “payment for environmental services” programs.	3.7	4.3
The one credit hour course taken during spring semester gave me a good background for material covered during the two weeks in Costa Rica	4.3	4.2

<sup>2</sup>Excellent = 5, Good = 4, Fair = 3, Poor = 2, Very Poor = 1.

<sup>3</sup>Strongly agree = 5, Agree = 4, Undecided = 3, Disagree = 2, Strongly disagree = 1.

coffee farms, banana plantations, ranches, cacao farms, and several forest types (mid elevation, lowland wet, dry, transitional dry). At each agricultural stop, students were given a tour by the grower/rancher and had the opportunity to interview the grower/rancher about all aspects of his or her business. Students were encouraged to ask questions in Spanish but most relied on the faculty for translations. To illustrate differences in biodiversity among systems and promote active learning, 30 meter by 30 meter square plots were sampled at each agricultural site. In the first year, 100 meter measuring tapes were used to mark plot boundaries. However, measuring tapes proved difficult to use in dense vegetation and were replaced in the second year with 30 meter sections of nylon rope. Students were divided into four groups tasked with sampling insects, trees, herbaceous plants, and birds. Prior to sampling for plants or birds, four students walked approximately 5 m apart and used sweep nets to collect insects from plants along 30 m transects within each plot. Insects were identified to order and the number of individuals recorded. All trees within a plot were counted and identified. Herbaceous species were counted and cover estimated within five randomly located 0.5 m quadrats per plot. Bird species were identified by sight and/or by sound within the plot and at 50, 100, and 200 m from the plot margins.

Student evaluation of learning can be an important measure of effectiveness (Bruening et al., 2002). Students were asked to rate the course and to provide information about the impact of the course

on their interest in pursuing additional international experiences and on their understanding of material covered during the course.

## Results and Discussion

All of the respondents agreed or strongly agreed that the course increased their interest in participating in a semester abroad or other international experience (Table 1). Similarly, all of the respondents from the 2006 cohort and 91% of respondents from 2008 agreed or strongly agreed that the course increased their interest in international agriculture. Nineteen students of the 32 students enrolled in 2006 and 2008 were entering their second or third year of coursework when they participated in our course. Seven of the 19 students (37%) subsequently participated in a Semester Abroad program, summer research program abroad, or in an additional Maymester course. Three students participated in eight week-long summer research programs at CATIE.

Although we recognize the limited scientific value of data obtained from our field sampling (Table 2), the congruency of our data with known characteristics of these systems supports the hypothesis that a relatively simple sampling procedure can be used as a heuristic tool in short-term international courses. Briefly, the conventional coffee and banana systems had relatively few tree and herbaceous species compared to the multi-story organic coffee and cacao systems. In the organic shade coffee system, most of the tree species occupied positions in the mid to upper canopy and

**Table 2. Results of Field Sampling in Four Agroforestry Systems in Costa Rica during Early Summer in 2006**

Agroforestry system	Herbaceous species <sup>2</sup>	No. of tree species	No. of insect species <sup>3</sup>	No. of bird species at four distances from field (m)			
				0	25	50	100
Conventional “sun” coffee	2 (26%)	2	32, 4 orders	0	0	1	4
Organic “shade” coffee	9 (96%)	6	74, 6 orders	0	7	3	1
Conventional banana	3 (36%)	1	104, 6 orders	1	0	0	0
Cacao	8 (46%)	5	111, 7 orders	2	3	1	0

<sup>2</sup>Values are the mean number of species, cumulative percent cover is in parentheses.

<sup>3</sup>Values are number of individuals captured.

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provided substantial shade for coffee plants (Table 2). In contrast, the sun system contained only one tree species other than coffee and individuals of that species were cut below the coffee canopy. However, more coffee plants were encountered in the sun system than in the shade system (data not shown). The organic systems also contained more insect genera and more bird species than the conventional systems. These general conclusions have been reported by several research groups throughout Mesoamerica (Perfecto et al., 1996, Reitsma et al., 2001, Somarriba et al., 2004). The field work had two major benefits. First, key features of agricultural systems such as biodiversity, pest management, soil erosion, and crop productivity, which were introduced during the semester course, could be directly observed and examined by students. Second, students were asked to reflect on their field experiences during group discussions and in their journals. In our opinion, this experience substantially enriched the discussions. For example, students could draw on their own observations when discussing the costs/benefits of growing coffee in sun vs. shade systems.

Field sampling in the tropics can present several challenges. First, students must be able to adjust to the physical challenges of working in the tropics, i.e. a hot and humid environment, steep terrain, insect bites, and sunburn. We limited field sampling to no more than two hours per day and insured that students carried water, wore appropriate clothing, and used sun lotion and insect repellent. Second, during the rainy season (approximately May to November in most locations), heavy rainfall can interfere with sampling by reducing bird and insect activity and by increasing the risk of students injuring themselves on difficult slopes. On a short course, it may not be possible to revisit a site to collect data if rain prevents field sampling during a scheduled visit. This occurred in both years of our course. In most cases, only data collection was affected; we were still able to tour the site and interact with Costa Ricans. Finally, plant, insect, and bird identification can be particularly challenging in the tropics due to the sheer number of species. In our study, common trees and birds could be identified by species, but many herbaceous plants and insects could not be identified beyond order or genera. Bird species were typically identified by sight although some species could be identified by their calls. We note that identifying plants, insects, and birds was only possible because faculty with appropriate expertise participated in the course.

Students agreed or strongly agreed that the course increased their knowledge of cropping systems in

Central America and of the importance of biodiversity (Table 1). During discussions and in their journal entries, it was common for students to compare agriculture in Costa Rica with agriculture in the United States. Several students suggested that, although opportunities existed to incorporate biodiversity concerns into perennial crops like coffee and cacao, annual crops like corn and soybeans provide relatively few opportunities for conserving biodiversity. These students were also concerned that a focus on biodiversity in Costa Rica or Indiana would reduce farm profitability. Most students expressed doubts that farmers in Indiana would be willing to consider biodiversity issues in developing their farm management plans because it would reduce their profits. In general, students indicated that they believed that biodiversity concerns should be taken into account by farm managers in the United States but were unsure how this could be accomplished.

A majority of students in both years agreed or strongly agreed that the course increased their awareness of trade with Central America and payment for environmental services (Table 1). Student journal entries, group discussions, and individual conversations with faculty focused on two main themes. First, they were surprised at the presence of U.S. firms, particularly fast food chains, in the larger cities. Some students were disappointed that these symbols of American life were so omnipresent but others were happy for the opportunity to eat familiar food. Second, although students understood the connections among trade, cropping systems, and biodiversity, they were evenly divided about whether they should or could change their buying habits to support more eco-friendly cropping systems. A common but not unanimous sentiment expressed was that, as “poor” college students, they couldn’t afford to pay extra for organic, environmentally friendly, or fair trade items but would be willing to do so after graduation. Some students also expressed skepticism about paying Costa Ricans for carbon credits to protect the forests in that country.

Students were generally comfortable interacting with Costa Ricans and expressed few concerns about personal safety. Students who spoke at least rudimentary Spanish appeared more likely to engage Costa Ricans than students who spoke no Spanish. However, during our stay on the Caribbean coast, all students were able to converse with locals in English. Some students indicated in their journals and group discussions that they felt particularly comfortable during this phase of the trip and attributed their comfort in part to sharing a common language with Costa Ricans along the Caribbean. Requiring fluency

in Spanish might have increased the direct interaction between students and Costa Ricans. However, such a requirement would also have substantially reduced the number of students who enrolled in the course. Group discussions and journals focused on similarities to U.S. history (i.e. displacement of Native Americans, segregation of European and African descendants) and the degree to which culture and history affect or reflect economic disparities among ethnic groups. Some, but not all, students noted that the quality of services such as roads and the apparent wealth of communities appeared to decrease as they traveled from San Jose, the capital of Costa Rica, to the Caribbean coast and into the indigenous reserve. A majority of students agreed or strongly agreed that the course increased their understanding of race and culture in both years (Table 1).

### **Summary**

Study abroad programs can be effective tools for exposing student to international perspectives on agriculture and sustainability. Purdue University and CATIE collaborated to provide undergraduate students with a short-term course in specialty crops in Costa Rica in 2006 and 2008. Results from class discussions, journal entries, personal comments, and post-course surveys suggest that the approach described in this paper met course goals for conveying discipline content, providing students with a meaningful cultural experience, and increasing student interest in additional international activities.

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