

[Music plays throughout video]

[During winter break of the 2014-2015 school year, I had the privilege of traveling to Costa Rica for a study abroad experience entitled Ecological Engineering in the Tropics. Sponsored by the Biosystems Engineering Department, this study abroad focused on the analysis [video of hummingbirds flying to feeders and drinking] of systems and processes within vital industries across the country, from food and energy production to wastewater treatment and ecosystems management. We studied their various components, how they operate, and how they affect and are affected by Costa Rican society, economy, and ecology. [Photo of monkey in tree]

[Photo of butterflies on clear platform] We first arrived in Alajuela and took a bus to our hotel in San Jose. [Photo of butterfly on leaf] The first day was spent exploring San Jose, visiting sites like Inbio, a biodiversity research facility, [Photo of iguana] [photo of animal in tree] the National Museum of Costa Rica [Photo of museum], and the University of Costa Rica [Photo of university]. Next, we visited the Fabio Research Station in Alajuela [Photo of grassy and forest area], where we spent the end [Photo of building] of our study abroad experience developing a solid-liquid separation component [Photo of forest mountain with large tube going down to building] for the [Photo of toucan] anaerobic digestion and wetland treatment system there. On the third day, we visited [Photo of windmills across green hills] Telaran, aptly called the land of wind and water. We visited two of the three major hydroelectric plants [Photo of windmills and rainbow] there and took a trip to see the wind farms. The next day, [Photo of beach with rocks] we travelled to the university EARTH La Flor, toured the facilities, listened to a [Photo of sailboat on water with mountain in background] professor speak about global climate change and its effects, and celebrated New Year's Eve on campus. [Photos of people at beach] On New Year's Day, we visited La Playa Hermosa on the Pacific Ocean. [Photo of bird with yellow belly perched on branch] Our next destination was the University of Georgia's Costa Rican campus (UGA), where [Photo of rainforest] we toured small coffee farms and processing facilities (31 – 36). We spent time at the [Photo of hummingbird drinking from feeder] Monteverde Nature Reserve to study biodiversity, then returned to UGA to analyze [Photo of large blue bird perched among trees] their anaerobic digester, and explore their botanical gardens in our free time [Photo of pink spindly flower]. Next, we travelled [Photo of rain forest] to the OTS research facility in La Selva, where we studied biodiversity [Photo of black bird perched on branch] [Photo of poison dart frog on log] and its benefits during day and night hikes. We also visited a pineapple processing plant [Photo of field of young pineapple plants], which was very beneficial for me since I focused my final project on pineapple production [Photo of toucan perched on tree among leaves] [Photo of animal, maybe monkey or sloth, in tree] and I'm interested in food engineering. Touring the CORBANA banana research, agricultural, [Photo of yellow snake curled up on tree] and processing facilities was also incredibly interesting and really brought many different factors and industries together into a cohesive entity. During my day as Day Leader, where [Photo of mountains, foliage, rustic shelters] I took on additional responsibilities for organizing events and documenting our activities and analysis, [Photo of trays of coffee beans with bowls of ground coffee] we visited Coopedota, a giant coffee cooperative in the Central Valley. [Photo of series of rustic, utilitarian, attached buildings] This tour was incredibly detailed and allowed us to see every aspect of coffee growth [Photos of mountains covered with trees and foliage] and production. Finally, we returned to Fabio Research Station for the last few days to [Photo of silos and buildings in the forested mountainside] design, build, and test our solid-liquid separation prototypes and write our preliminary [Photo of green mountains] reports. On the last full day, we visited a national park in attempts to see the [Photo of plant with leaves looking like flower petals] active volcano Mt. Poas, but then it was time to return home.

[Photo of mushrooms on wood] [Overall, it was an incredible experience! In addition to seeing the wildlife and enjoying the local cuisine, I deepened my passion for food operations and engineering as a

whole! [Photo of puffy clouds touching green mountain tops overlooking town] I practiced analytical techniques and honed my organization, communication, and problem solving skills by working in multidisciplinary and multicultural design teams. More importantly, [Photo of red flower] I gained new insight into the innumerable factors that affect food production, and how to account for these in optimizing processes to serve different goals. It is my goal to [Photo of blue butterfly on brick wall] keep learning more about this fascinating field, [Photo of scenic mountainside and countryside] and to apply skills and knowledge from coursework and hands-on experiences to my future line of work.] [Narrated by Joy Whitten][Story and Photos by Jackie Thelen [Photo of Jackie next to foliage with rustic shelter in background]

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