DUKE ENGAGE IN CHILE
Developing workforce skills and conserving the forest environment

Dates: May 15 - July 11, 2019
(Dates subject to change up until the point of departure.)

Service Themes
- Environment & Conservation
- Economic & Workforce Development and Social Enterprise

Program Focus
Participating in efforts to develop and strengthen workforce skills related to the transition of this temperate forest from logging to ecotourism. Supporting conservation activities including limnology of glacial lakes, re-forestation of native trees, assisting local botanical nurseries, and monitoring endangered species.

Curricular Connections: While all students are welcome to apply, this program may be of particular interest to students studying public policy, environmental policy, or economic development. (See below for additional details about connecting this program to your academic work.)

Program Leader
Jose Miguel Sandoval, Guest Lecturer, Sanford School of Public Policy. Jose Miguel Sandoval has published work on child rights as well as studied trends in Arab-American public opinion. Through leading DukeEngage-Chile, he hopes to promote awareness about conservation and sustainability in the area.

Program Overview
During their stay in Chile, students will work with the Huilo Huilo Foundation, based in Santiago and the town of Neltume, which focuses on promotion of human development and conservation of native plants and animal species endemic to the Huilo Huilo area. This program is aimed at improving economic activities of women artisans and entrepreneurs. It also addresses economic development of indigenous population, the poorest residents in the area. Students will participate in projects in two main areas: first, providing local artisans and ecotourism entrepreneurs with modern marketing tools, and second, adding to the community partner’s knowledge of the resources existing in the reserve by, for example, assessing water quality, supporting reforestation efforts, and monitoring an endangered species (Pudu Puda).

Student Learning Objectives/Outcomes
Students will be exposed to projects in the social and natural sciences. They will learn to interact in meaningful dialogue with the indigenous communities and will develop skills in limnology and flora and fauna identification.

Partnership Opportunities
Students will actively participate in ongoing activities of the Huilo Huilo Foundation. At least four main themes will be addressed, with potential activities including the following:
- Workforce development: The household survey taken in Year 1 of the program, aimed at understanding the community’s transition from logging to ecotourism, is now being used to identify segments of the labor force in need of development of labor skills. Students will support local artisans and ecotourism entrepreneurs by, for example, designing websites and promotional materials, preparing videos to educate tourists about the safety of
activities such as zip lines, white water rafting, and trekking; or designing apps to disseminate information to tourists.

- Measuring water characteristics of the Reserve lakes: Students may travel to five glacial lakes to measure water characteristics and the presence of subaquatic life, and to collect information on the fauna in the adjacent environment. Currently, information about these lakes is mostly anecdotal and privy to only a small group of community members. For the first time, a knowledge base about the lakes will be made available to the community at large. Students will report on characteristics of the lakes through comparisons of their water quality, location, depth and support of animal life. In 2019, a second data collection of twelve bodies of water will be made. This is aimed at achieving accurate measurements. Supporting the re-forestation effort: Students will travel to areas identified by the Huilo Huilo Forestry Reserve for replanting of native trees and documenting the presence of invasive trees and bushes using photography. Students will engage with staff scientists at the Reserve to evaluate findings after each field visit. This service activity is essential to establishing a link between the community and the Forestry Reserve.

- Preventing the extinction of the smallest deer on Earth: Working with the director of conservation in charge of identifying and locating Pudu Puda using trap cameras is an important component of the conservation project. The information obtained in this project will contribute to a better understanding of the presence of Pudu Puda in the Huilo Huilo Reserve. Only anecdotal information is available about this elusive small deer. Using a scientific approach at measuring its presence and location, students will contribute to building a database of sightings taken during the spring and summer of 2017. The community will gain knowledge about this animal through dissemination efforts in schools and other community gatherings.

- Building a labyrinth: Students will contribute to the marking and planting of a labyrinth of native ferns to be established in the Reserve’s nursery.

- Building a greenhouse serving as a center for seeds development to be used by fresh vegetable growers. This is a net effect of a proposal made in 2018 to encourage the production of fresh vegetables in the region.

Program Requirements
Language Requirements: Intermediate-level Spanish is required.

Course Requirements: Coursework in conservation and biology is preferred but not required. Any coursework in web or app design would be beneficial.

Other Skills: Students must be motivated and enjoy work that regularly involves walking and other outdoor physical activities in a cool, wet environment. Some background in biology and/or fieldwork is preferred but not necessary. Working knowledge of photography of natural settings may be helpful. Also, knowledge of fishing from lake shores will be useful. Skills in web development are welcome. For the 2019 project, manual skills in building tables, setting water pipes and installing electric heaters are also welcome.

Personal Qualities: Students must be motivated to work in close collaboration with others, including personnel of the Huilo Huilo Foundation, local entrepreneurs, and indigenous organizations. Students must be willing to learn new skills and gain new experiences, while demonstrating patience and flexibility.

Curricular Connections
Courses in innovation and entrepreneurship, web and app design, conservation, education, and limnology are relevant to this program, as well as courses across disciplines that address poverty and economic development in rural communities. Students taking the following courses would benefit from and can contribute greatly to this project: ENVIRON102, ENVIRON153, ENVIRON201, PUBPOL256, PUBPOL267, PUBPOL271S, MMS380, ISS 240, and ISS 241L.

Program Details
Description of Community: The Huilo Huilo Foundation Complex is located in Neltume, a small town in the Panguipulli Province located between two lakes, Panguipulli to the West and Pirihueico to the East. Neltume has a population of around 2,400 people. Five miles to the Southeast is Puerto Fuy (population 600), a port community in Lake Pirihueico.
Neltume and Puerto Fuy are small, relatively remote communities with limited infrastructure. The closest airport is in the city of Valdivia, about 100 miles away. In addition to these two small towns, there is a territory to the East of Lake Neltume inhabited by the Mapuche People (population 600). These are indigenous communities, inhabiting the region for over 3,000 years. The project will work with three independent communities located about four miles west of Neltume. High temperatures will vary from 28 to 58 Fahrenheit. Rain occurs frequently. Snow is possible.

Housing and Meals: Students will stay in lodge-style housing that is part of the Huilo Huilo Foundation Complex. Housing will consist of multi-person rooms with beds, nightstands, and closets. Each lodge has a kitchen and a living room. One of the lodges includes a computer lab with six computer stations and a printer. Meals are provided by local staff five days a week. Students will cook for themselves at least one day a week. All heating in the lodges is provided by wood stoves.

If you do not eat certain types of food for cultural, religious or personal reasons, please contact the DukeEngage office, dukeengage@duke.edu, to discuss whether or not your dietary needs can be reasonably accommodated at this program site.

Transportation: DukeEngage provides transportation to and from service placements and all scheduled program activities. Transportation in this program is in the form of two rental SUVs driven by program leaders.

Communication: Students will be provided with a basic local cell phone for program-related and emergency communication. Wireless internet access is available at the Huilo Huilo Foundation Complex.

Local Safety and Security; Cultural Norms, Mores and Practices: DukeEngage strongly advises all applicants to familiarize themselves with the challenges travelers commonly encounter at this program site in order to make an informed application decision. We recommend starting with these two resources:

- The International SOS (ISOS) portal for up-to-the-minute travel, health and security advice (Log in to the Duke ISOS portal with your Duke NetID)
- The Diversity, Identity and Global Travel section of the DukeEngage website

Opportunities for Reflection: Weekly discussion sessions will be held in the afternoon or evening. Discussions will focus on a theme or topic selected the week before. Sessions will include a discussion with a local tourism provider about his business plan, conversations with “artesanas” on the prospects of their work, and dialogue with community leaders on promoting entrepreneurial activities. Students will be expected to write at least one blog post (more are encouraged).

Other Opportunities: Much of the work will be collaborative and in groups, so autonomy and private space may be limited. During students’ limited free time, there are opportunities for walks outdoors where the complex is located. The town of Neltume has a few stores and restaurants. The Huilo Huilo Foundation requires that no outside visitors are allowed in the residences.

A visit to the town of Valdivia is planned mid-way through the experience. This is a university town of about 150,000. A visit to the university and a discussion with a local physicist (a glaciologist doing research in Volcano Mocho-Choshuenco, located 5 miles south of Neltume) has been arranged. Open water swimming is not a sponsored activity in any DukeEngage program.