

## **DUKEENGAGE IN BOLIVIA**

Building a bridge to prosperity

**Dates:** May 11 – July 6, 2020

(Dates subject to change up until the point of departure.)

### **Service themes:**

- Community Development & Outreach
- Science & Engineering

### **Program Focus**

Working with the organization Engineers in Action (EIA) and members of the local village to construct a suspended bridge near Cochabamba, Bolivia.

### **Program Leader**

- David Schaad, Professor of the Practice and Associate Chair in the Department of Civil and Environmental Engineering focuses on community-driven, sustainable development. He teaches the following courses: EGR132: Engineering the Planet, EGR201: Mechanics of Solids, CE205: Practical Methods in Civil Engineering, CE315/PPS211/ENV365: Engineering Sustainable Design and the Global Community, CE463: Water Resources Engineering, CE469: Integrated Environmental Design, and CE511: Construction Management.

### **Overview**

Over the past seven years, the student group Duke Engineers for International Development (DEID) has been working with Engineers in Action (EIA) in communities in Bolivia and Rwanda. Mobility and transportation access is a significant issue related to both the quality of life and standard of living for residents of these regions.

DukeEngage Bolivia participants will again team with EIA to design and build a suspended bridge in cooperation with a local community. The design will be developed as part of CE315/PPS211/ENV365: Engineering Sustainable Design and Global Community, and the students will coordinate with local technical expertise to construct the project.

### **Goals for Students**

- Understanding of the connections and linkages between social disadvantage and economic disempowerment
- Understanding how community-based interventions can leverage the opportunities and standard of living
- Participating with a local community to catalyze an infrastructure project which will improve both their standard of living and quality of life
- Assessing potential future projects and/or collaborations

### **Partnership Opportunities**

Students will design and construct a pedestrian footbridge over a river in the Cochabamba region, in collaboration with Engineers in Action and Duke Engineers for International Development. The issue of accessibility impacts local residents who are trying to reach school, adequate healthcare, and markets for their agricultural products.

### **Program Requirements**

Language: None required, but conversational Spanish is a benefit.

Coursework: Students will design the project as part of CE315/PPS211/ENV365: Engineering Sustainable Design and the Global Community. This course is offered WF from 11:45am-1:00pm in Spring 2020. While not required for the

DukeEngage experience, being part of the design team will certainly heighten your understanding and ownership of the project, as well as the details behind the project implementation.

Other Skills: Some construction knowledge is an asset, but not required. A willingness to work hard and perform manual labor is essential. Being part of the design team associated with Duke Engineers for International Development is recommended.

Personal Qualities: Ability to take direction, work hard, and have fun.

### **Program Details**

Description of Community: At this time, the exact location of the project has not been established, but it will be near the municipalities of Pocona or Tiraque, both in a similar area of the Cochabamba department. Cochabamba has been called the "[granary](#)" of Bolivia due to the variety of agricultural products produced there, and its capital is known as the "City of Eternal Spring" because of its spring-like temperatures year-round. Spanish and Quechua are the primary languages spoken.

Housing and Meals: Optimally the team will live together in a house or community center (sleeping on the floor in sleeping bags), but it is possible that they will be living in tents for the summer. Cooks will be hired to prepare meals for the team, but students should recognize that the diet will be simple (and typical of a rural community). It is likely that the team will be using pit latrines, may have to draw their own water, and wash their own clothes. Access to internet will be sporadic (or non-existent).

Local Safety, Security, and Cultural Norms: If you have special needs related to health, cultural, or religious practices, please contact the DukeEngage office, [dukeengage@duke.edu](mailto:dukeengage@duke.edu), to discuss whether or not your needs can be reasonably accommodated in this program.

For information related to how your religion, race, sexual/gender identity, ability or other aspects of your identity might impact your travels, we recommend starting with the Diversity, Identity and Global Travel section of the DukeEngage website.

We encourage students who have questions or concerns about health or safety in international programs to check Duke's [International SOS](#) (ISOS) portal for relevant information.

Reflection and Enrichment: Since the team will be living together, conversations over meals will naturally evolve toward reflective topics of race, privilege, and economic disparities, etc. Additionally, each team member will be highly encouraged to journal. EIA also requires each team to have a student serve in the role of Cultural Relations Manager. Part of that role is keeping a weekly log of how the team's cross-cultural engagement is progressing and leading group conversations on how the team can continue to grow their relationship with the community.

This project will be physically and emotionally demanding. However, at the end of the project, the team will leave behind a tangible product of their summer experience which will radically change the lives of everyone in the community. At the end of the project, the tentative plan is for the team to spend an extra day in La Paz so students can experience the capital of Bolivia. Other cultural/enrichment experiences may also be planned depending on the progress of the bridge construction. Another item of note, since the team will be living/working/eating/sleeping together, there may not be much individual/down time.

### **Curricular Connections**

While all students are welcome to apply, this program may be of particular interest to students studying engineering or pursuing the certificate in Global Development Engineering. Participation in this project can fulfill the "experiential" component of the Certificate in Global Development Engineering.