Case Western Reserve University  
Center for International Affairs  
Faculty Seed Grants  

1. Proposal Cover Sheet  

Name: Dr. Ronald G. Oldfield  
Department: Biology  
Additional Faculty/Staff involved: None  

Project Title: Developing a Field Course in Tropical Ecology at CWRU  

Brief Description of Project (100 words or less): At many universities, tropical field ecology is among the most popular of international courses, but such a course is conspicuously absent at CWRU. My course will teach students how to conduct ecological studies in natural tropical ecosystems. It will also provide interaction with indigenous tribes and expose the socioeconomic factors that influence their relationship with the environment. Finally, students will learn the subtleties of making the connections required to eventually develop their own tropical field research programs. The course will later be expanded to a semester abroad course at the host field stations.  

Total Funds Requested: $6,081.73  
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For Committee Use Only:  

Total Awarded:  


2. Proposal Abstract
2a. Summary of the proposal.

At many universities, tropical field ecology is one of the most popular international experiences sought by undergraduate students, as demonstrated by its ubiquity at both large universities and small colleges. However, such a course is conspicuously absent at CWRU. I seek to fill that void. My goal is to develop a robust, rigorous, reputable field course in Central America. Specifically, I am requesting funds to travel and investigate sites in Central America first-hand to gather the details necessary to implement a strong field course.

I applied for the grant in 2012 but was not chosen to receive funding. Shortcomings of my proposal were noted to be that the scope was too narrow and that the committee would have preferred to fund a project that had the potential to provide a broad impact on students. Also, I did not highlight how many students would have an interest in this field and how the project could influence more international programs. I believe that I have addressed these concerns well in the current proposal (1) by highlighting, in addition to the biology, the cultural and socioeconomic aspects of the course that all together will have a very broad impact on students, (2) by highlighting how important tropical field ecology courses are at other universities, and (3) by expanding the plan from simply developing an international short course to eventually developing a semester-abroad course. I feel that now my project may be highly competitive for funding.

My course will include travel to several diverse terrestrial and aquatic tropical habitats. At the sites, the students will explore the natural history of the environment through guided tours, perform independent field studies and orally present their results, and discuss ecosystem services and conservation with experts in tropical ecology. In addition to the fundamental experience of learning about biology, students will also communicate with indigenous tribes and learn about the socioeconomic factors that influence their relationship with the environment. Some interaction will also occur with non-English speakers. Students will also learn about the legality and permitting that is required to work in a tropical country and the subtleties of establishing the needed connections in other countries that are required to eventually develop their own tropical field ecology research programs. Overall, the course will provide a unique experience that will not only help students understand the complex forces that influence tropical environments, but will also expand their understanding of cultural diversity.

I propose to make two trips in 2015 to investigate logistics, sites, support, and infrastructure at the two of the most established and reputable tropical ecology organizations in the world, the Organization for Tropical Studies (OTS) in Costa Rica and the Smithsonian Tropical Research Institute (STRI) in Panama. My experience with similar organizations in Mexico, Belize, Brazil, and Nicaragua has prepared me for what to look for when gathering information at OTS and STRI.

My itinerary for my trip will include the following sites:
OTS: La Selva Biological Station, Las Cruces Biological Station, Palo Verde Biological Station, other sits to be determined.
STRI: Bocas del Toro, Barro Colorado Island, and other sites to be determined.
In addition to providing a physical place to conduct the course, both OTS and STRI’s Office of Academic Programs provide services to help organize field courses for faculty members at North American institutions. Specifically, they help instructors create a customized course for their students. They provide assistance with the logistic and administrative aspects of the course such as arranging for permits and for airport pick up and transportation throughout the country. They provide supplementary faculty and guest lecturers that are experts on particular topics endemic to the locale. They provide access to classrooms, laboratories, computers, science libraries, museum specimens, housing, and meals. This support will allow me as the instructor to concentrate on teaching and pedagogy. Basing the course at an established field station will also allow students to conduct field research projects using equipment present at the field station and will also allow them to spend more time in the field by living at the field site.

I plan to develop the course in a format that will consist of typical lectures and coursework on the CWRU campus during the first half of the Spring Semester that will prepare students for the international experience, which will occur during Spring Break. My proposed trips will allow me to take notes on material to cover during the pre-departure portion of the course so that I may provide my students with a strong introduction to Central America not only in tropical ecology but also in the social, cultural, and economic aspects of the countries we will visit.

A sample itinerary of what I would offer at OTS is as follows:

Day 1: Fly into San José; Explore INBio and other museums; Overnight in San José
Day 2: Drive to La Selva; Tour the reserve; Overnight at La Selva
Day 3: Field problems in a tropical river; Overnight at La Selva
Day 4: Drive to Arenal Volcano; Overnight at La Fortuna
Day 5: Drive to Palo Verde; Tour the park; Overnight at Palo Verde
Day 6: Field problems in a lowland dry forest; Overnight at Palo Verde
Day 7: Drive to Monteverde; Tour the reserve; Overnight at Monteverde
Day 8: Field problems in a cloud forest; Overnight at Monteverde
Day 9: Drive to San José; Closing dinner; Overnight in San José

The cost of the course can vary depending on its length and location, the amount of customized itinerary developed, and the number of students, and other conditions that are unique to each course. Instructors need to contact the field organizations with a specific proposal to get a price quote. Travel to the sites will allow me to determine which resources I would like to include in my course and will allow me to understand the value of each of the resources offered by the field organizations. The funding from the Center for International Affairs will allow me to test the various options available and construct a course that best fits my areas of expertise and the backgrounds and interests of CWRU students.

I am ideally qualified to develop a Tropical Field Ecology course. As an undergraduate student in the Department of Ecology and Evolutionary Biology at the University of Michigan I taught as a graduate student instructor for an Ecology “laboratory” course that consisted of a semester of field projects. Moreover, I would build on my experience enrolled in a graduate-level Field Ecology course that was based at a field station that I took while a grad student. The course format was based on a format developed by OTS that involved "field problems" composed of
mini research experiences that has become a model in field ecology pedagogy. This format gives students hands-on experience in developing field studies and testing hypotheses. I found that working closely and intensively in small groups in the field was one of the best learning environments I have ever experienced, and I would emulate that format in my Tropical Field Ecology course. Additionally, I have conducted field research throughout Central America and have published studies based on data that I have collected in countries such as Mexico and Nicaragua, which has further prepared me to develop a course in Tropical Field Ecology. Finally, at the 2003 meeting of the American Society of Ichthyologists and Herpetologists in Manaus, Brazil I organized the workshop, *Conducting field research in Latin America*, which featured a six-person panel of eminent neotropical biologists from the U.S. and Latin America and drew over 200 attendants.

2b. Outcomes expected by the project.

Students in the course will develop an appreciation for the biodiversity and complex biological interactions found in the ecosystems of Central America. It will also help them develop an understanding of the interaction between the flora and fauna of Central America and the culture, economic issues, and conservation efforts of the people of Central America. Perhaps most importantly, the course will provide students with the skills and connections necessary to establish their own research program in tropical field ecology.

My goal is to first develop a short-duration (10-day) international course, and then to eventually develop a semester-long study abroad course at the host field stations.

2c. Metrics to measure success.

Enrollment in the course will be one measure of success. In addition, I will offer detailed surveys to the students enrolled in the course at the end of every semester the course is taught, in addition to the standard course reviews that CWRU offers to students.

2d. Plan for sustainability.

I expect that the course should be able to continue indefinitely, even if led by another qualified CWRU instructor, because it will be rooted in conjunction with established, reputable tropical field organizations. There are many less reputable tropical field organizations that offer undergraduate courses, and my less-than-ideal personal experiences with some of these lead me to believe that it is very important to develop an association with a reputable organization. My goal is to first develop a short duration international course, and to later develop a semester-long study abroad course at the host field stations.

2e. Explanation of how this benefits CWRU as a whole.

CWRU has recently been expanding its Ecology and Evolution component; the addition of a Tropical Field Ecology course will further contribute to this effort and improve the overall strength of CWRU. This will help draw prospective students to CWRU.

Costa Rica

Flight:
CLE - San José Costa Rica, Friday, March 6, 2015 - Sunday, March 15, 2015
United Airlines, round trip, per Orbitz.com viewed 11-30-2015 $842.03

Lodging
Hotel in San José on arrival, 1 night (estimated) $74.00
Org. for Tropical Studies $74.00/day for 8 days $592.00

Panama

Flight:
CLE - Panama City, Panama, Wed. July 15 - Sunday, July 26, 2015
United Airlines, round trip, per Orbitz.com viewed 11-30-2015 $751.70

Lodging
STRI $50.00/day (estimated) for 10 days $500.00

Ground transportation $50.00/site (estimated) to 10 sites (estimated) $500.00
Field guides $50.00/day (estimated) for 8 days in each country $800.00
Food $48.00/day for 21 days (CWRU meal allowance) $1008.00

TOTAL $5,067.73

Unforeseen expenses (20% of total) $1014

GRAND TOTAL $6,081.73

No funding has been secured from other sources. No additional funding is needed beyond the amount requested from the Center for International Affairs.
4. Project Timeline

Spring Break 2015: One 9-day trip to Costa Rica.

July 2015: One 11-day trip to Panama.

Academic year 2015-2016: Paperwork required to establish the proposed course will be completed and submitted to the Center for International Affairs, to the Biology Department, and to the Dean’s Office and Registrar.

Spring 2017: The Spring Break course will be offered for the first time.

Academic year 2017-2018: The Spring Break course will continue to be offered. Semester-abroad course will be initiated.

Academic year 2018-2019: The Spring Break course will continue to be offered. Semester-abroad course will be offered.

5. Letter of support from department chair, dean, or direct supervisor

The chair of the Biology Department, Chris Cullis, has agreed to write a strong letter of support for this proposal.