**Estimating Uncertainty in Measurements, Experiments, and Models**

Workshop at the ILTER Open Science Meeting, Kruger National Park, October 11, 2016

Quantifying uncertainty provides estimates of confidence in measurements, models, and predictions. Understanding the sources of uncertainty can help formulate appropriate experimental designs, guide future research investments, and optimize allocation of monitoring efforts. Appropriate expressions of uncertainty are key to establishing internationally cohesive ecosystem and earth observation programs to answer important ecological questions.

Module 2. Experimental Design

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Abstract: This module will focus on designing appropriate and effective observational and manipulative studies. We will examine the basic requirements for rigorous statistical testing and investigate how design control can be effective in improving efficiency of data collection efforts. Participants should bring a laptop computer running R or RStudio. At the end of the workshop, participants will understand the trade-offs in uncertainty obtained with different kinds of designs.

Thank you for registering for this module. Please tell us something about your background and interest.

Name, contact info Background, interests, what do you want from this workshop?

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| Christina Staudhammer  Department of Biological Sciences, University of Alabama, Tuscaloosa USA  <http://cstaudhammer.people.ua.edu/>  e-mail: cstaudhammer@ua.edu | When I was in graduate school, mixed models were just beginning to become accessible to biometricians, but required substantial programming skills. Nowadays ecologists can access powerful statistical programs to analyze even very complicated designs, but we still have to know how to use them and how to interpret their results. |
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