

## PRIMES: Short Course on Bayesian Statistics

Fridays, 1-5 pm, Feb 9-March 2

**Course Description:** In this introduction to Bayesian statistics, students will become familiar with the basic concepts of Bayesian statistics and computational methods required to fit Bayesian hierarchical models. Students in the course will gain experience with WinBUGS, software used to fit Bayesian hierarchical models. The first part of the course will introduce students to Bayesian statistics and WinBUGS using basic Bayesian statistical models. The second part of the course will focus on spatial statistics and using WinBUGS to fit more sophisticated spatial models. WinBUGS spatial modeling examples will likely include modeling levels of rainfall in the city of Rio de Janeiro and predicting levels of PM10 as a function of temperature and humidity in Rio de Janeiro.

- **Class registration (required):** send email to Kristin Chatnani ([chatnani@math.colostate.edu](mailto:chatnani@math.colostate.edu)) by noon on Thursday, Feb 8. Any interested CSU graduate students and faculty are welcome to sign up for the course, but PRIMES students will be given first preference if the course is oversubscribed.
- **Time/Dates:** Fridays, 1-5 pm, Feb 9-March 2
- **Location:** 223 Weber
- **Credit:** Students who attend the entire course will be given a certificate of participation. No CSU credit will be given for the course.
- **Prerequisites:** The course should be suitable for all PRIMES students. A person with a background in basic statistics and calculus should be able to understand much of the course, but students with a stronger background in statistics will understand more of the nuances of the statistical methods presented.
- **Computing:** Please bring a laptop to class. Before the first session, install WinBUGS. The class will include a basic tutorial of WinBUGS, so there is no need to do any preparation with WinBUGS before class starts. WinBUGS is freely available at: <http://www.mrc-bsu.cam.ac.uk/bugs/welcome.shtml>

**Instructor:** Dr Alexandra Schmidt is an Associate Professor of Statistical Methods at Federal University of Rio de Janeiro, Brazil. Dr. Schmidt is an expert in Bayesian spatial modeling, with particular interest in nonstationary spatial covariance models. In addition to her methodological work, she has done research in a number of application areas including species diversity mapping, joint modeling of rainfall and run-off for a basin, spatial modeling of risk of dengue fever in Rio de Janeiro, and spatial mapping of malaria. Dr Schmidt received her Ph.D. from the University of Sheffield, U.K., and held a one-year post-doctoral position with Dr Alan Gelfand (previous PRIMES Distinguished Lecture speaker).