

A workshop for Ph.D. and post-doctoral students

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<http://www.biometricsociety.net/2015/02/17/a-workshop-for-ph-d-and-post-doctoral-students/>

A workshop for Ph.D. and post-doctoral students:

“Spatially-varying stochastic differential equations, with application to the biological sciences”

Mathematical Biosciences Institute (MBI), Columbus, Ohio

July 6-10, 2015

<http://mbi.osu.edu/event/?id=904>

In biology, ecology, and public health there has been a growth in the use of stochastic differential equations (SDEs) to model scientific phenomena over time. SDEs have the ability to simultaneously capture the known deterministic dynamics of the variable of interest (e.g., chemical levels within a cell, the chemical or physical characteristics of a river, the presence, absence and spread of a disease), while enabling a modeler to capture the unknown dynamics or measurement processes in a stochastic setting.

In this four-day workshop, participants will learn about the use of SDEs to model physical phenomena in the biological sciences. Students will learn how to define and manipulate SDEs, and will understand the difficulties in performing statistical inference on the parameters of SDEs using data. They will relate the modeling of SDEs to the theory of spatial and temporal data analysis, and will carry out a small group project to discover and investigate how to model data from various disciplines within the biological sciences.

The lectures will be taught by a selection of external and internal speakers, each of which have a different experience in different aspects of modeling using SDEs, as well as in spatial and temporal data analysis. Students will learn the material through practical exercises.

Students should come to the workshop with two years of graduate experience in Statistics or equivalent. They should be comfortable with statistical models and theory, likelihood inference, and have some exposure to Monte Carlo techniques. Students should have taken a course in linear models, and have knowledge of the statistical software package called R (<http://www.r-project.org>). Some exposure to time series analysis and spatial statistics is helpful, but not essential. Students should bring a laptop to the workshop, preloaded with R. Online material (including videos and exercises) useful for this course will be made available at least a week before the workshop begins.

Partial support is available for students to attend this workshop.

Apply at <https://visitor.mbi.ohio-state.edu/events.html?id=904> by Friday March 20th 2015 for full consideration.

To apply please include a CV, a research statement and a recommendation letter.

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