



Statistical Sciences
UNIVERSITY OF TORONTO

SEMINAR

March 31, 2016 at 3:30pm

**Refreshments at 3:10pm*

Sidney Smith Hall, Room 2106

Speaker: Andrea Riebler, Norwegian University of
Science and Technology

Host: Patrick Brown

Estimation and extrapolation of time trends in registry data using Bayesian age-period-cohort models

Age-period-cohort (APC) models are commonly used to analyze and project mortality or morbidity rates, in which effects related to the age of an individual, calendar time (period) and the generation (cohort) can reasonably be assumed to be present. Bayesian approaches facilitate estimation and improve predictions by assigning smoothing priors to age, period and cohort effects. A quirk of APC models is, however, the obvious linear dependence of age, period and cohort effects leading to a well-known identifiability problem. When rates are further stratified, for example, by countries, multivariate APC models can be used, where differences of stratum-specific effects are identifiable and interpretable as log relative risks. In this talk I will introduce the univariate APC model and illustrate the inherent identifiability problem before I will present novel methodology for statistical inference in multivariate Bayesian APC models.