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**POPULATION PROGRAM &  
HEALTH AND SOCIETY PROGRAM**

## Guy Abel

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Presents

# Modeling International Student Migrant Tables

Monday, August 4, 2008

12:00 – 1:00

Population Program Conference Room, IBS#3

The application of gravity or spatial interaction models to international population mobility tables is almost non-existent. This is due to inconsistent and missing data on movements between multiple countries as no single agency exists to manage data collection. Inconsistencies between international student migrant data are minor in comparison to most other international migration data sources due to the formal processes involved for foreign students. Missing international student mobility data, however, like international level mobility data, still occurs, especially into countries that have traditionally received fewer student migrants. For international student migrant data this problem can be relatively easily overcome to enable the modeling of a consistent and complete international migrant table, allowing an empirical examination of covariate factors on student migrant patterns over multiple nations.

In this talk, spatial interaction models are applied to international student migrant tables for the five largest sending and receiving nations of international student migrants between 1998 and 2005. Negative binomial regression models are used to account for overdispersion in the response. They are fitted using the Expectation-Maximization (EM) algorithm to account for the missing reported cells values, where previous fitting methods for gravity and spatial interaction model are unable to do so. The results of fitting a quasi-independent model, main effects models with multiple covariates, and interaction models are compared with respect to Akaike Information Criterion's to establish the most parsimonious model. Using the EM algorithm to determine model parameters in these models provides imputations for cell values previously unknown.

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