Urban Big Data Centre (UBDC) Summer Training Programme 2016

‘Multilevel Modelling’

Course instructor: Dr Jinhyun Hong, UBDC, University of Glasgow

Course duration: 3hrs (Monday 29th August 2016, 9:30am – 1:30pm, breaks and lunch included)

Course location: Sir Alwyn Williams Building (Level 5), University of Glasgow

Audience: Social scientists, students, practitioners.

Pre-requisite knowledge: a good understanding of linear regression and ‘Introduction to R’ course or equivalent knowledge

Course summary:

Many data often has a hierarchical structure. For example, residents are clustered into the neighbourhoods and students are nested into the school. These intrinsic characteristics of data could result in challenges when analyzing data (e.g., potential correlation between element units (residents) in the same higher level unit (neighbourhoods)). A multilevel model approach can incorporate a data hierarch by allowing varying estimates according to a higher level of a hierarchy. This training session will introduce the fundamentals of multilevel model and examples with R and WinBUGS codes.

Course contents:

- Why multilevel model?
- Costs and benefits of multilevel model
- Fitting multilevel models in R
- What is the Bayesian approach?
- Fitting multilevel models in R and Bugs