Optimizing Aging & Health: Methods and Applications
Centre on Aging Colloquium Series, Fall 2014

The Centre on Aging (COAG) is a research intensive centre at the University of Victoria, with members engaged in aging research in its many forms, including both quantitative and qualitative methods, and longitudinal, experimental, and intervention designs. A key emphasis is on advances in the health, cognitive vitality, and well-being of an aging community. This colloquium series has been developed to highlight both substantive and methodological innovations and applications in aging research. This fall, our colloquium series emphasizes data management and statistical analysis using R software (http://www.r-project.org/) and statistical models for identifying trajectories and transitions in longitudinal studies and administrative health data. This fall series will be of general interest to researchers and students who wish to increase their expertise in statistical analysis using R.

This series will be hosted in partnership with the Department of Psychology, Education and Training Unit of Population Data BC, and the Island Health Research and Capacity Building Program and theIntegrative Analysis of Longitudinal Studies of Aging (IALSA; NIH/NIA 1P01AG043362) Research Network.

Location: University of Victoria, Medical Sciences Building, Lecture Hall - Room 160
 Note: Sessions will also be available via live web streaming hosted by WestGrid

Contact: Scott Hofer, Centre on Aging (coagdirector@uvic.ca)

Time for all sessions: 10:30 am to 12:00 pm PST

Schedule of Events

Tuesday, Oct 14, 2014 - Toolbox and Skillset of Reproducible Research (RR) – Andrey Koval (UVic)
Tuesday, Oct 21, 2014 - RR Basic Skills (1): Data Manipulation – Andrey Koval (UVic)
Tuesday, Oct 28, 2014 – Introduction to Latent Class and Latent Transition Models: Matching Models to Questions to Data – Brian Flaherty (University of Washington)
Tuesday, Nov 4, 2014 – RR Basic Skills (2): Graph Production – Andrey Koval
Tuesday, Nov 11, 2014 – Remembrance Day (No Session)
Tuesday, Nov 18, 2014 – RR Basic Skills (3): Statistical Modeling – Andrey Koval
Tuesday, Nov 25, 2014 – RR Basic Skills (4): Dynamic Reporting – Andrey Koval
Tuesday, Dec 2, 2014 – Migrating into R from other Statistical Software – Andrey Koval

Session Details

Tuesday, Oct 14, 2014
Andrey Koval (University of Victoria)
Toolbox and Skillset of Reproducible Research
The lecture introduces reproducible research and demonstrates digital self-publishing with RStudio and Git (Hub). The skills described and emphasized in this workflow include data manipulation, graph

production, statistical modeling, and dynamic reporting. A more elaborate discussion of each basic skill will be provided in the next four lectures.

Tuesday, Oct 21, 2014
Andrey Koval (University of Victoria)
RR Basic Skills (1): Data Manipulation
The lecture covers the process of importing, transforming, and saving data with R and RStudio.
Topics: data entry and import; techniques and practices of cleaning data; organizing the data workflow; reshaping data; saving, storing, and exporting data.

Tuesday, Oct 28, 2014
Brian Flaherty (University of Washington)
Introduction to Latent Class and Latent Transition Models: Matching Models to Questions to Data
Lecture details to follow.

Tuesday, Nov 4, 2014
Andrey Koval (University of Victoria)
RR Basic Skills (2): Graph Production
The lecture introduces the grammar of graphics and its implementation in R.
Topics: basic R graphic utility; producing basic graphs with ggplot2; graph tuning and preparing your graphs for publishing.

Tuesday, Nov 11, 2014
Remembrance Day (No Presentation)

Tuesday, Nov 18, 201425-Nov-2014
Andrey Koval (University of Victoria)
RR Basic Skills (3): Statistical modeling
The lecture introduces model fitting in R and discusses popular packages for estimating statistical models (lm, gls, lme4, etc.).   Fitting of linear and mixed models of longitudinal data is demonstrated. The strategy of organizing and post-processing of the model output is discussed.

Tuesday, Nov 25, 2014
Andrey Koval (University of Victoria)
RR Basic Skills (4): Dynamic Reporting
The lecture introduces publishing with knitr and rmarkdown packages inside RStudio. A brief tutorial on markdown language will be provided as well as a demonstration on integrating R code into reports, and a discussion on the strategy of report production. Several output formats (pdf, html, slides) are considered.

Tuesday, Dec 2, 2014
Andrey Koval (University of Victoria)
Migrating into R from other Statistical Software
The lecture discusses the challenges and opportunities of multilingual estimation.

Showcase: Longitudinal mixed model in syntax of R, Mplus, SAS, and SPSS. Costs and benefits of multilingualism in estimation. In focus: R package MplusAutomation as the means to post-process Mplus estimation.