Statistical Analysis of Health Data from Complex Samples
CHL7001H S3, Winter 2014
http://individual.utoronto.ca/vlandsman/teaching.html

Description and Objectives

This course covers topics on statistical methods in survey sampling methodology with emphasis on their application to the real health data from complex samples.
It is intended to provide an analytical foundation and to present current techniques for the statistical analysis of health survey data.

Instructors

Victoria Landsman, OICR; *Email: victoria.landsman@oicr.on.ca*
Wendy Lou, DLSPH; *Email: wendy.lou@utoronto.ca*

Time and Place

Monday, 2-5pm; Health Science Building, Room 705

Prerequisites

Mathematical Foundation of Biostatistics (CHL5226H) or equivalent; experience using a statistical software package, such as SAS, R and/or STATA.

Evaluation

Three Assignments: 45% (with 15% each)
Midterm Exam: 15%
Final Term Project: 40%

- *A late-penalty of ten percent per weekday will be applied for overdue assignments and the project.*
- *Details for the project will be described in class.*

Registration

Students are required to pay fees, register and enroll during the term through their program. Students who fail to do so cannot receive a credit or grade for their work. Retroactive registration is not permitted.

Course Outline

Date	Topic
January 6	Introduction
January 13	Background and Terminology
January 20	Types of Sampling Designs
January 27	Know the Data and the Software. R package SURVEY.
February 3	Survey Weights and Methods for Weight Calibration
February 10	Midterm Exam
February 17	*Reading Week - No class*
February 24*	Variance Estimations for Complex Survey Data
March 3	Analysis of Survey Data – Practical Application I
March 10	Analysis of Survey Data – Practical Application II
March 17	Analysis of Survey Data – Practical Application III
March 24	Advanced Topics – I
March 31	Advanced Topics – II
April 7	*Term Project Due – No class*

*Final date to drop a course without academic penalty

Reference Books[†]

- Korn, E. L. and. Graubard, B. I. (1999). *Analysis of Health Surveys*, Wiley, New York.
    - http://onlinelibrary.wiley.com/book/10.1002/9781118032619

- Valliant, R., Dever, J.A. and Kreuter, K. (2013). *Practical Tools for Designing and Weighting Survey Samples*, Springer, New York.
    - http://link.springer.com/book/10.1007%2F978-1-4614-6449-5
    - http://jpsm.umd.edu/project/valliant-r-dever-j-kreuter-f-2013-practical-tools-designing-and-weighting-survey-samples-new

- Lohr, S. L. (2010). *Sampling: Design and Analysis*, 2nd Edition, Brooks/Cole, Pacific Grove, CA.
    - http://books.google.ca/books?id=VbsEAAAAQBAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

- Cochran, W. G. (1977), *Sampling Techniques*, 3rd Edition, Wiley, New York.
- Heeringa, S. G., West, B. T. and Berglund, P. A. (2010). *Applied Survey Data Analysis,* Chapman and Hall, London.
    - http://www.isr.umich.edu/src/smp/asda/

[†]*Additional reading materials will be provided.*