STAT 305 Fall 2012
Introduction to Biostatistical Methods for Health Sciences Day Course
Statistics Workshop

Students requiring accommodations as a result of disability must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca

Instructor: Jorge Rodriguez
Lab Instructor: Robin Insley

Prerequisite:
STAT 201 or 203. Students cannot obtain credit for STAT 305 if they already have credit for STAT 302 or 350, or if they are simultaneously enrolled in STAT 305 and either or both of STAT 302 and 350. Statistics major and honors students may not use this course to satisfy the required number of elective units of upper division statistics.

Textbook:
Principles of Biostatistics, 2nd Edition, Pagano M, Gauvreau K.. Pacific Grove, CA: Duxbury, 2000.

Calendar Description:
Intermediate statistical techniques for the health sciences. Review of introductory concepts in statistics and probability including hypothesis testing, estimation and confidence intervals for means and proportions. Contingency tables and the analysis of multiple 2x2 tables. Correlation and regression. Multiple regression and model selection. Logistic regression and odds ratios. Basic concepts in survival analysis. **Quantitative**

Course Outline:
This course provides an opportunity for the further development of analytic skills acquired in basic courses in statistics and the health sciences. It concentrates on the relatively few techniques that are currently most used in health research, but it also seeks to provide a conceptual basis for understanding other techniques as well. An attempt is made to focus on unifying principles and widely applicable methods as opposed to presenting an array of unrelated ad hoc methods. The material is presented descriptively, from the point of view of understanding and practical use.

The emphasis of the course is on analysis (rather than design) of primarily observational studies where there is one outcome variable of primary interest and where the data are made up of multiple independent observations. Important areas not covered are: classical multivariate analysis (e.g., factor analysis, discriminant analysis, etc.), longitudinal data analysis, time series, random effects models, and experimental design considerations (e.g., Latin squares, etc.).

Objectives:
By the end of the course the participant should:

1. understand the concept of a statistical model and how such models correspond to specific hypotheses or questions,
2. be able to interpret the results of an analysis in relation to the original questions or hypotheses that motivated the analysis,
3. be familiar with data analysis methods commonly used in health sciences and understand the basic limitations of competing methods,
4. understand and be able to critique the analysis methods described in published health research papers,
5.