

# Winter 2011 SFU-UBC Joint Graduate Student Workshop in Statistics

Contact: Michelle Xia [cxia@stat.ubc.ca](mailto:cxia@stat.ubc.ca)

Tara Cai [y.cai@stat.ubc.ca](mailto:y.cai@stat.ubc.ca)

Xiaoli Yu [x.yu@stat.ubc.ca](mailto:x.yu@stat.ubc.ca)

Department of Statistics  
University of British Columbia

February 23, 2011

# 1 Introduction

The SFU-UBC Joint Graduate Student Workshop in Statistics is going into its seventh year. The idea of this event is to provide graduate students in Statistics with an opportunity to attend a seminar with talks that are more accessible to them and to give them a chance to present their work, as well as to practice their presentation skills, in a more relaxed environment. It also provides us with the opportunity to interact with other graduate students in Statistics from both our Departments. Another important feature of this event is that it is organized by us, the students of Statistics from SFU and UBC. Topics of Actuarial Science are also included since many of the students in both Departments specialize in that area.

This time the traditional statistics joint workshop will take place early during the winter 2011 term. In addition to this, the workshop will be held in downtown Vancouver. The venue will be located in UBC Robson Square, one of the most identifiable places in the city of Vancouver (shown in the picture on the next page). This building houses part of the downtown campus of University of British Columbia. Continuing with the usual format of past years, this event will consist of talks given by 6 students (3 from UBC and 3 from SFU) and 2 professors (1 from each Department).

In the next pages you will find information about the place and schedule of the Winter 2011 SFU-UBC Joint Graduate Student Workshop in Statistics. Provided also are instructions and maps on how to get there.



## 2 General Information

1. **WHEN:** Saturday February 26, 2011 from 10:00am to 4:30pm
2. **WHERE:** Room C130 UBC Robson Square, 800 Robson Street, Vancouver
3. **General Schedule:**
  - (a) Talks from 10:00am to 12:00pm
  - (b) Lunch from 12:00pm to 1:30pm in the seminar room
  - (c) Talks from 1:30pm to 4:30pm

## 3 Getting there

UBC Robson Square is located in downtown Vancouver on Robson Street between Hornby and Howe Streets. Map on the last pages of this document shows the area in downtown Vancouver around UBC Robson Square, located at 800 Robson Street in Vancouver.

All downtown buses stop within blocks of UBC Robson Square, and the closest bus stop can be found just off the corner of Robson and Howe Streets. The Burrard and Granville SkyTrain stations are located within three blocks of the campus.

For those coming from UBC campus, you can take bus 17 from the north bus loop. Those coming from SFU's main campus in Burnaby may take bus 135. Those coming from other places can use google maps or mapquest to get instructions on how to get there.

The following link contains more information on how to get to UBC Robson Square:

<http://robsonsquare.ubc.ca/find-us/>

## 4 Schedule Summary

1. 10:00-11:00 Faculty talk : Dr. Alexandre Bouchard
2. 11:05-11:30 Student talk: Sky Liang
3. 11:35-12:00 Student talk: Darby Thompson
4. 12:00-13:30 Lunch
5. 13:30-14:30 Faculty talk: Dr. Larry Weldon
6. 14:35-15:00 Student talk: Ruth Joy
7. 15:05-15:30 Student talk: Yi Huang
8. 15:35-16:00 Student talk: Harlan Campbell
9. 16:05-16:30 Student talk: Aline Tabet

## 5 Detailed Schedule

**10:00am Speaker: Dr. Alexandre Bouchard (UBC)**

**Title:** Survival Guide to Academic Job Search

**Abstract:** I will talk about my recent job search experience, sharing some advices that were given to me or that I have learned in the process. I will go over the main components of the process: writing the statement, preparing and giving the job talk, and handling the interviews. Some of the questions I will approach: What is the difference between a research project and a research program? Why it matters when writing a research statement? What are typical questions asked during interviews? What should one include and not include in their job talk?

Even if you are not planning to apply in the short term, many parts of the talk should apply to other aspects of your academic life. For example many advices are equally relevant when preparing conference talks or planning a research program.

**11:05am Speaker: Sky Liang (UBC)**

**Title:** Econometric Structural Modeling of Direct and Indirect Communication.

**Abstract:** The objective of this talk is to illustrate a simple econometric structural model of direct and indirect communication. People communicate with each other either directly or indirectly. One interesting question is whether these communications are complimentary or substitute. In this project, we study one special case of direct/indirect communication, namely, the people communicate with each other through either call (direct) or text message (indirect) using mobile phones. A structural model based on utility maximization is constructed, based on which statistical inference is performed. If time permits, I will also present an earlier version of this project, which involves a model with latent variables.

**11:35am Speaker: Darby Thompson (SFU)**

**Title:** Building Joint Models for Longitudinal and Time-To-Event Models.

**Abstract:** Joint models for longitudinal and time-to-event data have become increasingly popular as a way to improve individual-level predictions and parameter estimates in survival models by incorporating time-dependent covariates measured with error. The talk will provide an overview of the topic with a motivating hypothetical example demonstrating the utility of a joint model. Further, a review of the various types of joint models, terminology, and interpretations of various models will be provided. Finally a portion of results from a large simulation study will be provided; comparing the power of various joint models to detect treatment effects in a standard survival model.

### **12:00pm Lunch**

#### **1:30pm Speaker: Dr. Larry Weldon (SFU)**

**Title:** The Magic of Randomness: how to convey the charm of statistics to your uneducated friends.

**Abstract:** Most laypersons are not researchers. And yet, research is where statistical methods have become most entrenched. For people outside of research, what has statistics got to offer? I want to outline a few examples of scenarios that I think might interest “everyday people”, in which statistical ideas are the key to understanding. More particularly, I want to describe some scenarios in sport, investment, traffic, demographics, and peer review in which randomness plays a surprising role, and yet the surprise disappears when the explanation is provided. I think such explanations convey to laypersons that a familiarity with the effects of randomness is a useful thing to have, and if the subject of statistics is where this familiarity is gained, it must be a worthwhile discipline!

#### **2:35pm Speaker: Ruth Joy (SFU)**

**Title:** Applying State Space Methods to Northern Fur Seal foraging data.

**Abstract:** In this study, a general methodology is proposed to understand the patterns in high resolution movement time series that relate to marine animal behavior. The approach is illustrated with dive data from northern fur seals (*Callorhinus ursinus*) tagged on the Pribilof Islands, Alaska. The central goal is to estimate parameters of a movement model, on an appropriate time scale that provides

a direct link to behavior. A state space model describing movement is applied, and the corresponding high-resolution vertical movement data (i.e. depth or dive data) is assimilated. A particle filter with state augmentation is used to jointly estimate the movement parameters along with the state. The analysis yields fitted parameters that show distinct time-evolving changes in fur seal behavior over time, matching well what is observed in the original data set. Preliminary interpretation of the resultant fur seal behaviour along tracks in the context of the Bering Sea environment and commercial groundfish catch will be discussed.

**3:05pm Speaker: Yi Huang (UBC)**

**Title:** Finite-Sample Properties of Adjusted Empirical Likelihood.

**Abstract:** This talk is based on my master thesis. It focuses on the finite-sample properties of adjusted empirical likelihood (AEL) for the population mean. To be more specific, we investigate the shape of AEL-based confidence region for the population mean, and the relationship between the original empirical likelihood and the adjusted empirical likelihood. We also discover a finite-sample property of AEL that may produce confidence regions of infinite size especially when the sample size is small. To overcome such a problem, we propose a simple modification to adjust the “adjusted empirical likelihood”.

**3:35pm Speaker: Harlan Campbell (SFU)**

**Title:** Data Visualization in R.

**Abstract:** Properly displaying data in a clear and informative fashion is of primary concern for any statistician. And yet so many papers, presentations, reports and results are maimed with pitiful plots and terrifying tables. We can do better. In this talk I will consider many aesthetic guidelines championed for, and by statisticians. R is a powerful tool for graphical display and I will go through many examples of how one can improve ordinary everyday plots (e.g. boxplots, scatterplots, histograms). Finally, I will demonstrate some of R’s more remarkable graphical capabilities including the creation of interactive plots, animations and GIS-style maps. It is also possible to create a “user friendly web



interface for an R script” that allows clients unfamiliar with R the ability to use the impressive data visualization tools you create.

**4:05pm Speaker: Aline Tabet (UBC)**

**Title:** Statistical Consulting, a Viable Career Option.

**Abstract:** I discuss the ups and downs of choosing statistical consulting as a career: How to get clients and promote your services, how much to charge clients, etc. I present some of the advantages and disadvantages of choosing this career path, as well as some of the lessons I am learning along the way.

