# Course Syllabus: STAT 560 / CS&SS 560 Hierarchical Modelling in the Social Sciences Winter Quarter 2008

# Time and Location

When: 9:30am-11:20am Tuesday and Thursday Where: Smith 220

#### Instructor

Adrian Dobra Office: Padelford Hall B-303 E-mail: adobra@u.washington.edu Office hours: 11:30am - 12:30pm on Tuesday and Thursday.

# Textbook

Gelman, A. and Hill, J. (2007). Data Analysis Using Regression and Multilevel/Hierarchical Models, Cambridge University Press.

#### **Course Contents**

This is an applied data analysis course that focuses on hierarchical linear models. It explores basic statistical models such as linear and logistic regression, generalized linear models before moving on to introducing their multilevel extensions. Key issues related to simulation methods, causal inference, analysis of variance, sample size calculations, model selection and missing-data imputation will also be covered in depth. Although the underlying theory behind hierarchical models is certainly important, the numerous examples we will discuss during the lectures will be crucial. At the end of this course the students should be proficient at analyzing hierarchical data and fully understand all the statistical issues involved.

# Prerequisites

It is assumed that the students have completed a statistical sequence (e.g., SOC 424-426) and an applied regression course (e.g., CS&SS 504). Computations will be performed using R, hence some familiarity with this statistical package is welcomed but not required.

# Homeworks, Exams and Grades

I will assign at least one homework per week that will typically involve the analysis of a dataset. You are allowed and encouraged to collaborate with other students in your class, but you should submit your own writings when they are due. Copied homework will not receive any credit. In addition, I will not give any credit to the assignments I receive after the due date and time. There will be no exceptions to this rule because we will discuss the assignment in class.

The homeworks should be written with a text editor (preferably Latex and Emacs). The plots should be clearly labeled. Raw computer output will not be given credit. Please staple your homeworks and clearly mark them with your name.

The homework will count as 70% of your grade. There will be a final class project that counts for the rest of your grade. There will be no midterm or final exams.

### Communication

You should try to come to the office hours for questions and discussions. You can also email me as needed but please do not expect an immediate reply. Your feedback is welcomed at all times.

# Disclaimer

This syllabus is supposed to be an overview of the class. Changes to these rules might occur and you are encouraged to check the course webpage frequently.