STAT 402
Generalized Linear and Nonlinear Modelling

Spring 2009
Day Course

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

Instructor: Dr. Rachel Altman

Prerequisite:

STAT 350

Textbook (Optional):

An Introduction to Generalized Linear Models (3rd edition) by: A.J.Dobson; publisher: Chapman & Hall.

Calendar Description:

A skills oriented unified approach to a broad array of non-linear regression modelling methods including classical regression, logistic regression, probit analysis, dilution assay, frequency count analysis, ordinal-type responses, and survival data. **Quantitative.**

Outline:

NOTE: This course extends the concepts, methods and approach of STAT 350-3 to cover a wide variety of types of outcome data. It employs a modern unified approach to a broad array of nonlinear regression problems.

1. Brief review of linear regression and likelihood theory
2. Theory of generalized linear models: the exponential family, link function, iteratively reweighted least-squares estimation
3. Goodness-of-fit and model selection
4. Models for particular types of outcomes: binary, categorical, count, multinomial
5. Overdispersion and quasi-likelihood
6. Survival analysis
   (or as much of the above as time permits.)

Grading Scheme:

Assignments – 50%
Midterm – 20%
*Final – 30%