STAT 350
Linear Models in Applied Statistics

Spring 2012
Day Course

Instructor: Dr. Tom Loughin (Surrey)

Prerequisite:
STAT 285 and MATH 251. Ability to communicate clearly in written English.

Textbook:
Applied Linear Statistical Models, 5th ed, by Kutner, Nachtsteim, Neter and Li, Publisher: McGraw-Hill/Irwin

Calendar Description:
Theory and application of linear regression. Normal distribution theory. Hypothesis tests and confidence intervals. Model selection. Model diagnostics. Introduction to weighted least squares and generalized linear models. **Quantitative**

Outline:

1. Linear models: Definition, simple and multiple linear regression models, ANOVA models. Incorporating different types of predictor variables and their interactions in the model. Matrix notation.
2. Estimation methods: Least-squares, maximum likelihood. Algebraic and geometrical interpretations.
3. Properties of least-squares estimators: Mean, variance, and covariance of least-