

**STATISTICS 217**  
**“STATISTICAL METHODS II”**  
**Spring 2004**  
**SYLLABUS**

**NOTE:** All quizzes will be written in the lab. No formula sheets permitted for the quizzes.

Midterm will be written in class on June 10<sup>th</sup>.

Final will be arranged by the registrar's office. One standard sized formula sheet permitted.

**Schedule for quizzes and midterm**

Quiz 1 May 26<sup>th</sup>

Quiz 2 June 2<sup>nd</sup>

Quiz 3 June 9<sup>th</sup>

Midterm June 10<sup>th</sup>

Quiz 4 June 16<sup>th</sup>

Quiz 5 June 23<sup>rd</sup>

No classes on Monday, May 24<sup>th</sup> and Friday, June 4<sup>th</sup>. Classes end on Friday, June 25<sup>th</sup>.

**Topics Covered**

- (1) Normal Distribution: Basic introduction to using Normal tables and calculating outcome frequencies and probabilities. Central Limit theorem. Using z and t tables.
- (2) Confidence intervals for the means, proportions. Required sample sizes for given interval width.
- (3) Introduction to hypothesis testing. Acceptance and rejection regions. P-values Type I and Type II error. Hypothesis about the means and proportions including Student T- test. Power function of test involving the mean and proportion.
- (4) Hypothesis testing and confidence interval for the variance, chi-squared distribution.
- (5) Comparison of two population standard deviations (or variances). Comparisons of two population means and two population proportions including paired Student T-test. Confidence intervals for the difference of two sample means and proportions.
- (6) Comparison of 3 or more population means. One-way and two-way ANOVA.
- (7) Non-Parametric tests. Wilcoxon signed rank test, Mann-Whitney test, Kruskal-Wallis Test....
- (8) Chi-squared goodness of fit test. Tests of homogeneity, independence and contingency tables...
- (9) Linear regression model, scattergrams, Least Squares Method. Estimation of the intercept and slope, confidence intervals and tests. Regression ANOVA and the F- test. Coefficients of correlation and determination. Predictions and their confidence intervals.