UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

Statistics 217 Introduction to Statistics II

(see Section 3.5C of Faculty of Science www.ucalgary.ca/pubs/calendar/current/sc-3-5.html and Course Descriptions: http://www.ucalgary.ca/pubs/calendar/current/course-main.html)

Syllabus

Topics	**Number of hours**
ESTIMATION Point and interval estimation. Unbiased estimators. Confidence intervals for means, proportions, and their differences. Required sample size for given interval width. Optional: Notched Box-and-whisker plots.	4
HYPOTHESIS TESTING: ONE SAMPLE Introduction to hypothesis testing. Acceptance and rejection regions. Type I and Type II errors and their probabilities. Hypotheses about means and proportions including Student T-test. Power function of a test involving the mean and proportion. Hypothesis testing and confidence interval for the variance, Chi-squared distribution.	8
HYPOTHESIS TESTING: TWO SAMPLES Distribution of the difference of two sample means and proportions. Comparisons of two means and two proportions including paired Student T-test. Optional: Levene's test or Fisher's distribution and comparison of two variances.	5
CHI-SQUARED TESTS Goodness of fit tests to uniform, binomial, Poisson and Normal distributions. Tests of homogeneity, independence and contingency tables.	4
ANALYSIS OF VARIANCE One way analysis of variance including F-test. Two way analysis of variance with one observation per cell.	3
LINEAR REGRESSION 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. Multivariate and polynomial regression.	7
NON-PARAMETRIC TESTS Selection of non-parametric tests from the following list: Sign test, Mann-Whitney test, Wilcoxon signed-ranks test, Kruskal-Wallis test, Kolmogorov-Smirnov test.	5
TOTAL HOURS	36

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PE:jml
Calendar change H(3-2) to H(3-1-1T) Fall 2009