UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

Statistics 205   (3-1-0)   Introduction to Statistical Inquiry

(see Course Descriptions under the year applicable: http://www.ucalgary.ca/pubs/calendar/)

Syllabus

Topics	**Number of hours**
Introduction to Probability: Sample Space, Events, Conditional Probability, Bayes Theorem, Sensitivity, Specificity, Prevalence, Odds Ratios	5
Variable Types and Data Collection: Observational Studies, Completely Randomized Experimental Designs, Confounding Variables. Data Validity. Simple Random Sampling.	2
Data Properties: Distribution, Measures of Center, Measures of Spread. Distribution Shapes, Mean, Median, Standard Deviation. Quartiles	3
Random Variables and Probability Models: The Binomial and Normal distributions. The Central Limit Theorem	3
Confidence interval estimation of the mean, the proportion (Wilson's CI for p), odds ratio	4
Testing hypotheses of the mean (T-test) and the proportion. Type I and Type II Errors. P-values	4
Two sample tests for means and proportions. Matched-Pairs Experimental Design	6
Bivariate Data. Simple Linear Regression. Chi-Square Test of Independence	5
Experimental Design and Multi Sampling Inference. Analysis of Variance (ANOVA). Tukey-Kramer Multiple Comparison Method	4
TOTAL HOURS	36

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