



# STAT 101

## Introduction to Statistics

Fall 2006  
Day Course  
Statistics Workshop

Students requiring accommodations as a result of disability, must contact the Centre for Students with Disabilities 604-291-3112 or [csdo@sfu.ca](mailto:csdo@sfu.ca)

This course may be applied to the  
Certificate of Liberal Arts

Instructor: Crystal Linkletter  
Lab Instructor: [Robin Insley](#)

### Prerequisite:

To receive credit for both STAT 100 and STAT 101, STAT 100 must be taken first. Students with credit for ARCH 376, BUEC 232 (formerly 332) or STAT 270 (formerly MATH 272 and 371) may not subsequently receive credit for STAT 101-3. Students with credit for STAT 102, 203 (formerly STAT 103), 301, MATH 101 or 102 may not take STAT 101 for further credit.

### Textbook:

*Statistics The Art and Science of Learning from Data*, by Alan Agresti and Christine A. Franklin, Publisher: Pearson Prentice Hall

### Calendar Description:

An introductory course in the collection, description, analysis and summary of data, including the concepts of frequency distribution, parameter estimation and hypothesis testing.

### Outline:

Aimed at a non-mathematical audience, this course discusses procedures that are most commonly used in the summary of statistical surveys and in the interpretation of experimental data. The rationale for these procedures is explained in detail, but the use of mathematical formulas is kept to a minimum.

The course will include an introduction to JMP IN, a computer package for statistics. You will need access to a computer and to JMP IN to complete the course.

#### **1.The Design of a Statistical Study:**

The two major design types, controlled experiments and observational studies, are discussed, with special emphasis on the limitations of each.

#### **2.Descriptive Statistics:**

The following methods of summarizing the information in large data sets are introduced: histograms and other graphs, averages, standard deviations, and the normal approximation.

#### **3.Correlation and Regression:**

The correlation coefficient is introduced as a measure of the strength of association between two quantities; the regression line, as a graph of averages. Deviations from this line are discussed.

#### **4.Probability:**

Methods are presented for computing the probabilities of chance occurrences. The binomial formula is stressed.

#### **5.Chance Variability:**

Fallacious interpretations of "The Law of Averages" are brought to light, and the predictable patterns that do indeed emerge in repetitions of chance experiments are discussed.

#### **6.Sampling and Chance Models:**

The concept of a sample survey is studied from the design stage through the conduct of the survey to the analysis of the results. Special attention is given to the role of chance errors on the accuracy of the results.

#### **7.Estimation and Tests of Significance:**

Elementary methods of analyzing the results of controlled experiments and observational studies are presented. Standard t-tests and c<sup>2</sup>-tests and related confidence intervals are introduced with emphasis on the role of the chance model, and the interpretation of the results.

**Grading Scheme:**