



# STAT 201

## Statistics for the Life Sciences

Spring 2007  
Day Course

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

This course may be applied to the  
Certificate of Liberal Arts

Instructor: Scott Pai (Surrey)

### Prerequisite:

30 Credit hours. Students with credit for STAT 101, 102, 203 (formerly 103), 270 (formerly MATH 272) or 301 may not take STAT 201 for further credit. Intended to particularly accessible to students who are not specializing in Statistics.

### Textbook:

*The Basic Practice of Statistics, 3rd Edition*, by David S. Moore, W.H. Freeman Publishers

### Calendar Description:

An introductory course in research methodology and associated statistical analysis techniques for students with training in the life sciences.

### 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. Either STAT 101 or STAT 201 is a satisfactory prerequisite for STAT 302.

1. **Data summaries and displays:** Graphical displays, measures of central tendency, measures of dispersion, percentiles, the normal curve, computer generated graphs and data summaries.
2. **Summarizing the relationship between variables:** Scatter plots, the regression line, correlation, and causation.
3. **Basic probability calculations:** The addition and multiplication rules, and independence.
4. **Distributions for count data:** The binomial and Poisson distributions; where they arise, and their basic properties.
5. **Hypothesis tests and confidence intervals:** p-values, confidence levels, and their interpretation; inferences on a proportion and a mean based on the standard normal and t-distributions, underlying assumptions, and a mention of alternatives.
6. **Comparing two treatments:** Completely randomized and paired designs; associated standard normal and t-tests.
7. **Inference on the relationship between two variables:** Simple linear regression and correlation analysis, plus, if time permits, comparing two lines and basic analysis of covariance.
8. **Comparing several treatments:** Completely randomized and randomized block designs; one- and two-way analyses of variance.
9. **Analyzing Frequency Counts:** tests for homogeneity and independence.

### Grading Scheme:

Homework – 15%  
Midterm – 40%  
Final 45%

*Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester. Students are reminded that Academic Honesty is a cornerstone of the acquisition of knowledge. Scholarly integrity is required of all members of the University. Please consult the General Guidelines of the calendar for more details.*