# Course Outline

**Course Title:** Statistics for the Life Sciences
**Course Code:** STAT 201

**Spring 2013**
**Credits:** 3
**Section:** C100
**Course Description:**

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

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.

**Requisite:**

**Course Requirements:**

| Assignment/Exam | Percentage |
| --- | --- |
| Assignment 1 | 5% |
| Assignment 2 | 5% |
| Assignment 3 | 5% |
| Assignment 4 | 5% |
| [Mid-term Exam](#) | 30% |
| [Final Exam](#) | 50% |

**Requirements Notes:**