

Learning objectives for BSCI 111b Test 4

Experiment 7 Vegetation Sampling and Analysis

At the end of this experiment, you should be able to:

- explain why sampling is necessary and give examples where poor sampling technique could misrepresent the true nature of a population.
- distinguish among systematic, haphazard, and random sampling and explain the advantages of random sampling
- describe why *Lonicera maackii* may be a threat to native plants in natural areas.
- list factors that can influence the accuracy of a GPS receiver.
- correctly use the terms **plot**, **quadrat**, and **terminal bud**

Experiment 8 Introduction to *Drosophila* and Field Trip Analysis

At the end of this experiment, you should be able to:

- separate male and female *Drosophila melanogaster* on the basis of sex combs
- differentiate between mutant and wild-type forms for the following traits: white-eye, miniature wing, and forked bristle
- anesthetize flies using an etherizer
- describe how we can use the data that we collected to determine if deer browsing affected one plot more than the other
- describe how we can use the data that we collected to determine if the distribution of small and large plants varied between the plots in which *Lonicera maackii* was removed and not removed.
- correctly use the terms **layer**, **raster**, **vector**, **feature**, and **attribute** in the context of a geographic information system (GIS)
- explain the advantages and disadvantages of using a global positioning system (GPS) receiver to provide data for analysis in a GIS.
- use attributes of a feature to change the way it is displayed in a GIS map

Learning objectives related to the use of statistical tests to analyze experimental results

The following statistical tests are included: **t-test of means**, **paired t-test**, **regression**, **chi-squared goodness of fit**, **chi-squared contingency test**. You will not be tested on ANOVA.

You should be able to:

- decide on the best statistical test based on the type of data available and the hypothesis being tested
- state the null hypothesis for the test
- interpret the results of the test from the standard quantities that are typically reported for that test