**Bio211 Biostatistics and Experimental Design Winter Term 2018**

**Lab 2 Sampling Design**

**January 10, 2018**

Goals: Learn about how sampling design may affect population estimates.

Create a dataset we can use to explore descriptive statistics.

Protocol:

We will use a variety of sampling methods to make population estimates of colored dots on a population board.

The class will be split into 6 groups (more or less by table). Groups 1-3 will complete the lab between 1:00-2:00 and groups 4-6 will complete the lab between 2:00-3:00.

Each group will record their counts in an excel spreadsheet that will be used in Assignment 2. Please make sure to only edit your group’s tab.

Each group will work with a sampling board. The sampling boards are plastic rectangles with a lot of colored dots on them. We will only be counting the pink, dark blue, green, and red dots (if you are red/green colorblind, please make sure you’re working with other people that aren’t). The colored dots represent populations and we are trying to estimate the size of the population without counting every single one of each dot, because that would take too long.

The board is 1m2 (or 10,000cm2). You will count the colored dots in a subset of that total area to calculate a population size estimate using various sampling strategies. Since you are only counting a subset of the total population, this is an estimate. We will see how different sampling strategies will change that estimate.

Each group has been assigned combinations of the following sampling strategies. Your assigned sampling strategies are noted on your group’s tab of the google sheet. For now, ignore the mean/population estimate/etc. lines of the sheet. You will be responsible for filling those out for Assignment 2.

**Shape of the quadrat on population estimates**

Circle, square, or rectangle with the same internal area

Circle: radius 5.64cm; internal area 100cm2 count 25 circles

Square: 10cm x 10cm; internal area 100cm2 count 25 squares

Rectangle: 4cm x 25cm; internal area 100cm2 count 25 rectangles

**Size of the quadrat on population estimates**

3 different sized squares

5 cm x 5cm; internal area 25 cm2 count 100 small squares

10cm x 10cm; internal area 100 cm2 count 25 medium squares

15cm x 15cm; internal area 225 cm2 count 11 large squares

**Placement of the quadrat on population estimates**

Random: Two sets of numbers are taken from a random numbers table as the x and y coordinates and the quadrat frame is placed on the location corresponding to the numbers.

Even: The quadrat frame will be placed on the board in an even pattern to ensure sampling of all areas.

Eye: Here the assumption is that one can use their brain to look over the area to be sampled and choose locations for sub-sampling that will fairly represent the species present.