

Homework 2

Biology 697

9/13/2012

1 Problems from Whitlock & Schluter

Complete problems 14,16 on pg. 19 and 10, 13, 16 from pgs. 79-82. Use R where possible. Datasets (so you don't have to type things in) are available at <http://www.zoology.ubc.ca/~whitlock/ABD/teaching/datasets.html>. Note, you may need to apply additional arguments from functions like boxplot.

2 A little R and Simulation

2.1 Sums

2.1.1 Summation

Often, we want to sum up a whole vector. In R, we can do this with the function `sum`. For example, to get the sum of all integers, 1 through 10, we use:

```
sum(1:10)
## [1] 55
```

Use a loop to get the same result as the `sum` function above for 1 through 10.

2.1.2 Cumulative Sums

The R function `cumsum` takes a vector and gets the cumulative sum of every element in the vector. For example:

```
cumsum(1:10)
## [1] 1 3 6 10 15 21 28 36 45 55
```

Use a loop to get the same result as the `cumsum` function for 1:10.

2.2 More than the mean

We've looked at the relationship between the sample size and estimation of the mean. Do the mean, median and standard deviation all appear to require the same sample size for a precise estimate? Try this with a normally distributed population with mean 10 and standard deviation of 5, and a uniform distribution between 0 and 1000. Instead of using `sample`, draw from the distributions directly. They are your 'population.'

For fun, `par(mfrow=c(1,3))` will make a plotting window with 3 panels in 1 row (1 row, 3 columns)