EEB R Bootcamp plotting and stats

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- Plotting basics

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- Simple modeling

Basic statistics

- T-tests
- ANOVA and other linear models
- More advances statistics…

Comparing means of groups

Figure 1: Three species of irises in the Anderson/Fisher data set: setosa (left), versicolor (center), and virginica (right). *Source*: The photographs are respectively by Radomil Binek, Danielle Langlois, and Frank Mayfield, and are distributed under the Creative Commons Attribution-Share Alike 3.0 Unported license (first and second images) or 2.0 Creative Commons Attribution-Share Alike Generic license (third image); they were obtained from the Wikimedia Commons.

Advanced plotting

- Color palettes
- Heatmaps
- Networks
- The R graph gallery:

http://www.r-graph-gallery.com/all-graphs/

Population growth using R

The geometric growth model is a model for population growth in discrete time. It assumes that every year the size of the population changes by the same factor, R.

$$N(t+1) = R \times N(t)$$

We will simulate the growth of a population for 10 years, starting with N=100 animals and assuming R = 1.05.

General layout of modeling scripts

1. Setup statements, if needed (e.g. loading packages)
2. Input data, set parameter values, and/or set initial conditions
3. Perform the calculations
4. Display the results by plotting, saving, or showing on-screen.

Some resources that will make your life with R easier…

- Quick R: http://www.statmethods.net/
- R reference card: ftp://cran.r-project.org/pub/R/doc/contrib/Short-refcard.pdf
- R colors: http://research.stowers-institute.org/efg/R/Color/Chart/ColorChart.pdf
- R studio
- Google!