

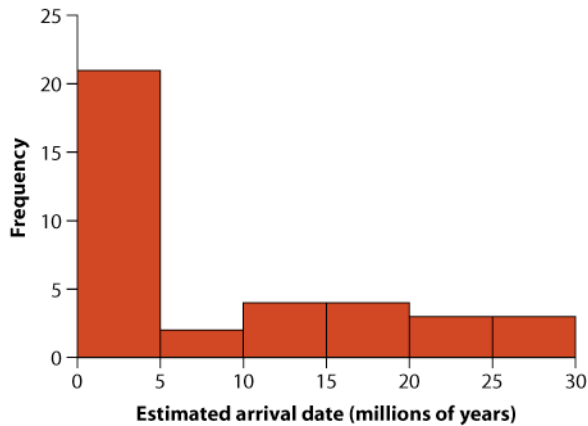
BIOL 300 Assignment 2, Spring 2012

Chapter 2

16. (a) Frequency table.
(b) A single variable (number of convictions).
(c) 21.
(d) 265 of 395 (the fraction 0.67) had no convictions.
22. (a) Cumulative frequency distribution.
(b) The y-axis indicates the quantile of the variable indicated on the x-axis (annual percent change in human population). The quantile is the fraction of observations less than or equal to the value on the x-axis.
(c) Approximately 10% of the countries had negative change in population size.
(d) The 0.10 quantile is approximately 0 growth, the 0.50 quantile is 1.5% growth, and the 0.90 quantile is 3% growth.
(e) The 60th percentile is approximately 1.75% growth.
24. (a) Grouped histograms. Explanatory variable: genotype at PTC gene. Response variable: Taste sensitivity score. Genotype is categorical variable, taste sensitivity is numerical.
(b). Scatter plot. Explanatory variable: migratory activity of parents. Response variable: migratory activity of offspring. Both variables are numerical.
(c) Grouped cumulative frequency distributions. Explanatory variable: year of study. Response variable: density of fine roots. Root density is numerical. While year is a numerical variable, strictly speaking, it is used as a categorical variable in this figure to define the three groups of measurements.
(c) Grouped bar graph. Explanatory variable: HIV status. Response variable: needle sharing. Both variables are categorical.

Chapter 3

12. (a) Histogram shows a sharply right-skewed frequency distribution of ages, with the mode at a young age. There might be a second, low peak at intermediate ages.



(b) Median appears to be between 0 and 5 million years ago (mya), whereas mean is between 5 and 10 mya. The mean is greater than the median because the distribution is right-skewed: the large values influence the mean more than the median.

(c) Mean (8.6 mya) is indeed greater than the median (3.5 mya).

14. **(a)** This is a histogram.

(b) Mean: approximately 1000 yards/minute. The frequency distribution is fairly symmetric, so the mean should lie near the middle.

(c) Median: approximately 900 yards/minute. The frequency distribution is fairly symmetric, so the median should lie near the middle, close to the mean.

(d) Mode: 1000–1100 yards/minute (the most frequently occurring interval in a frequency distribution)