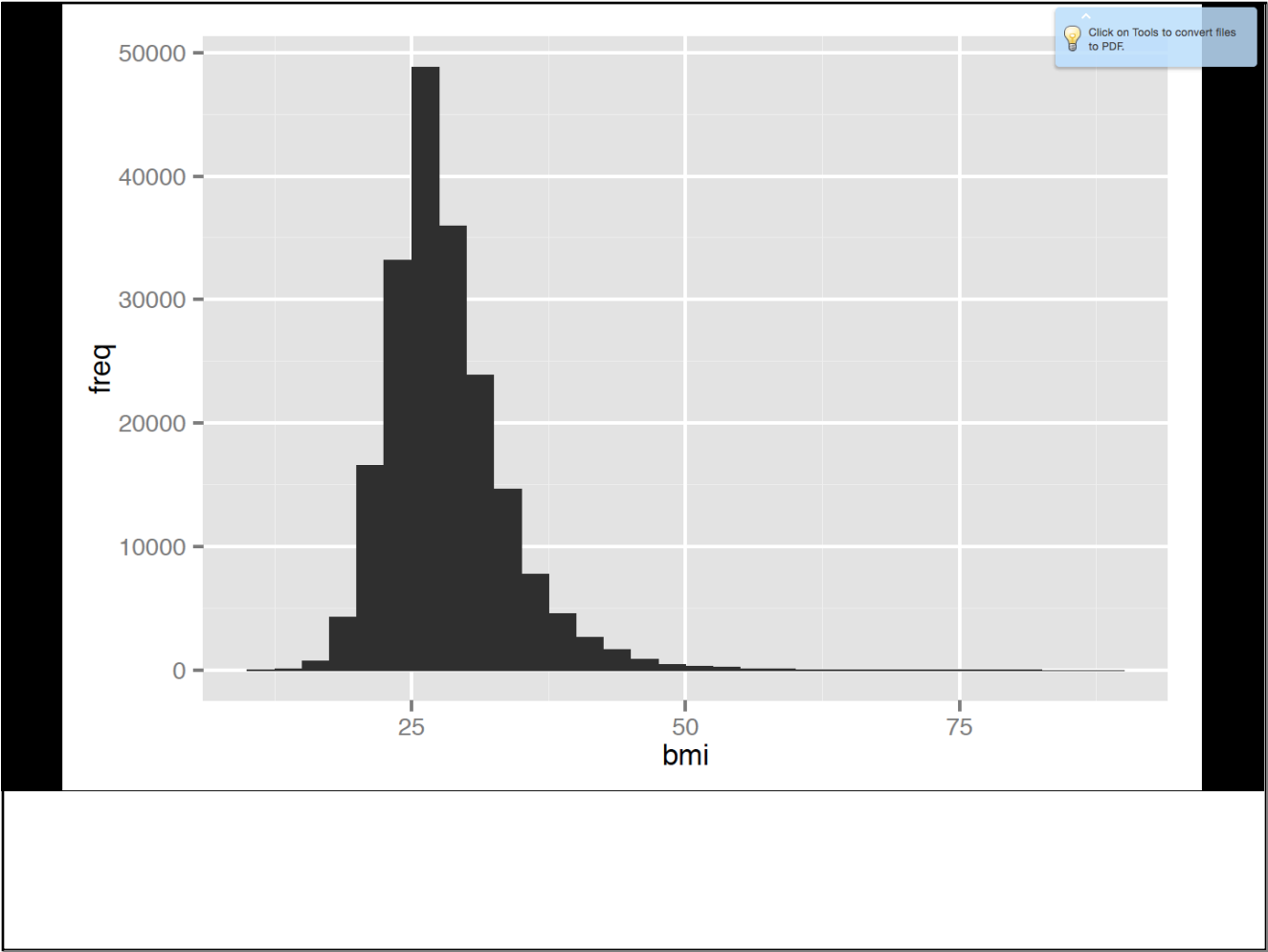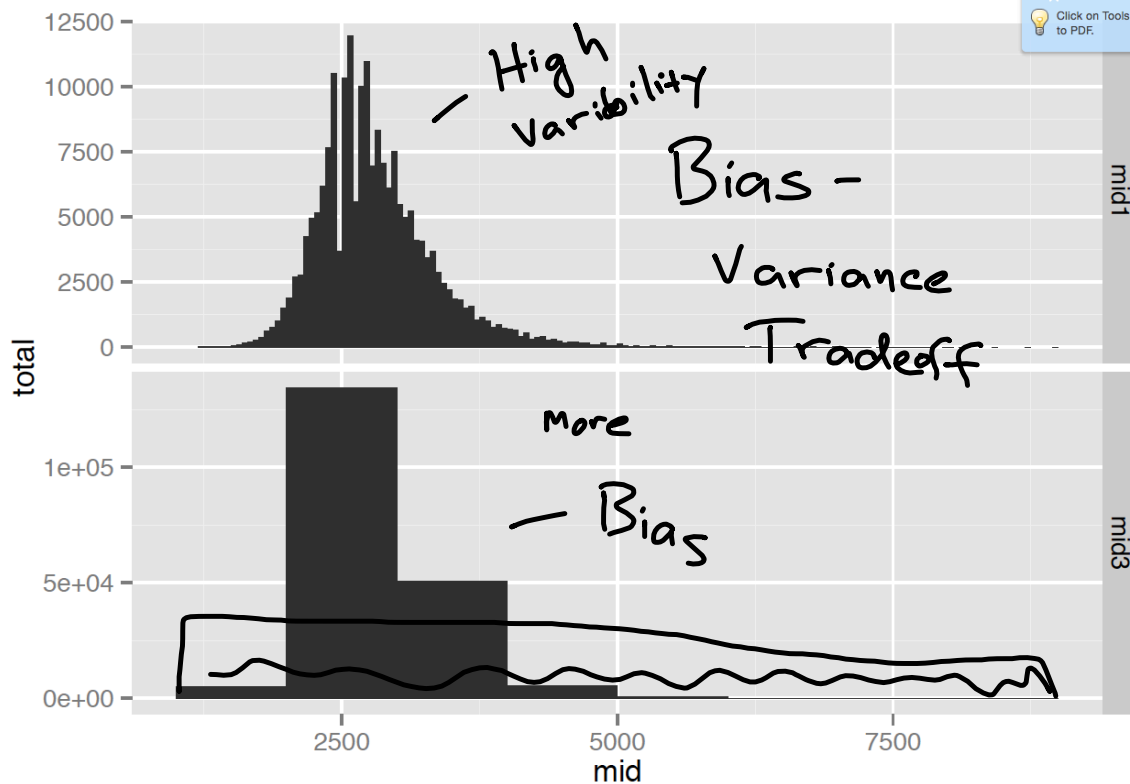cross-section
   a sample from one point
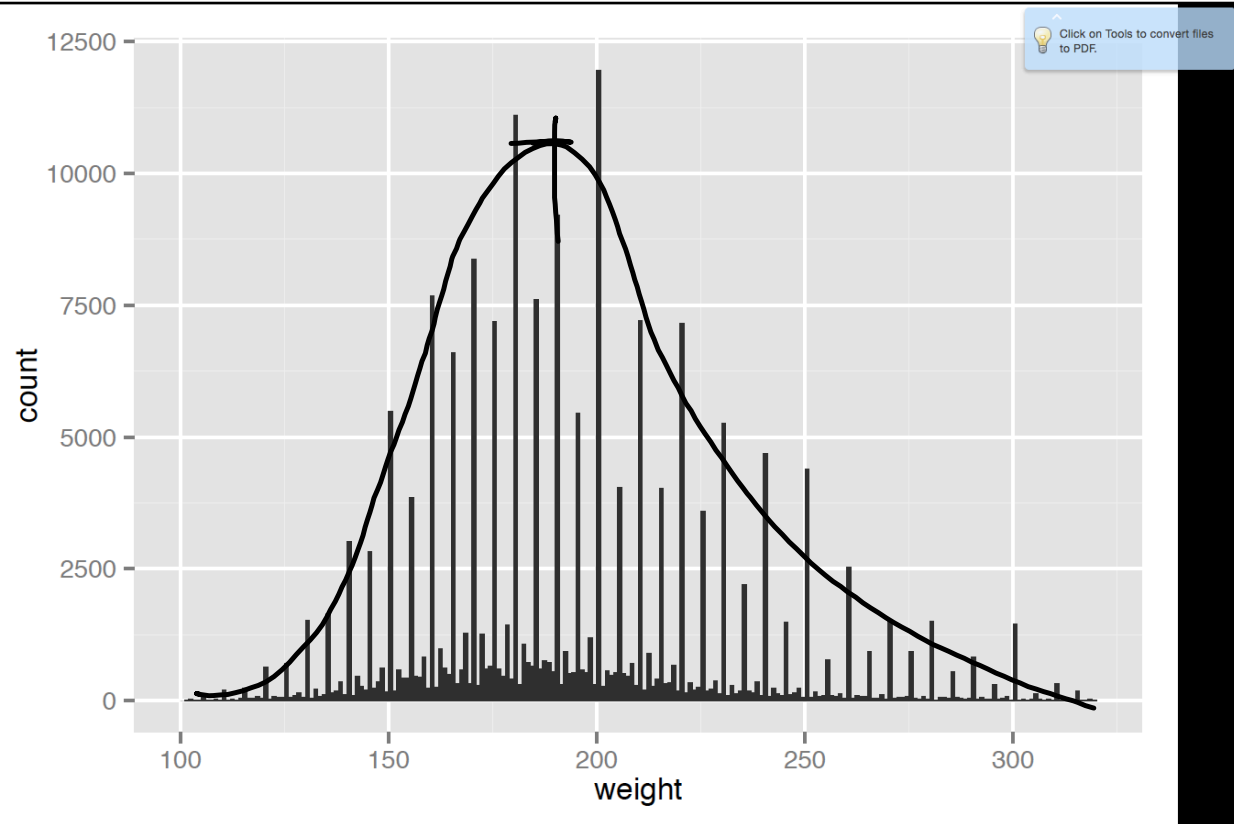   in time

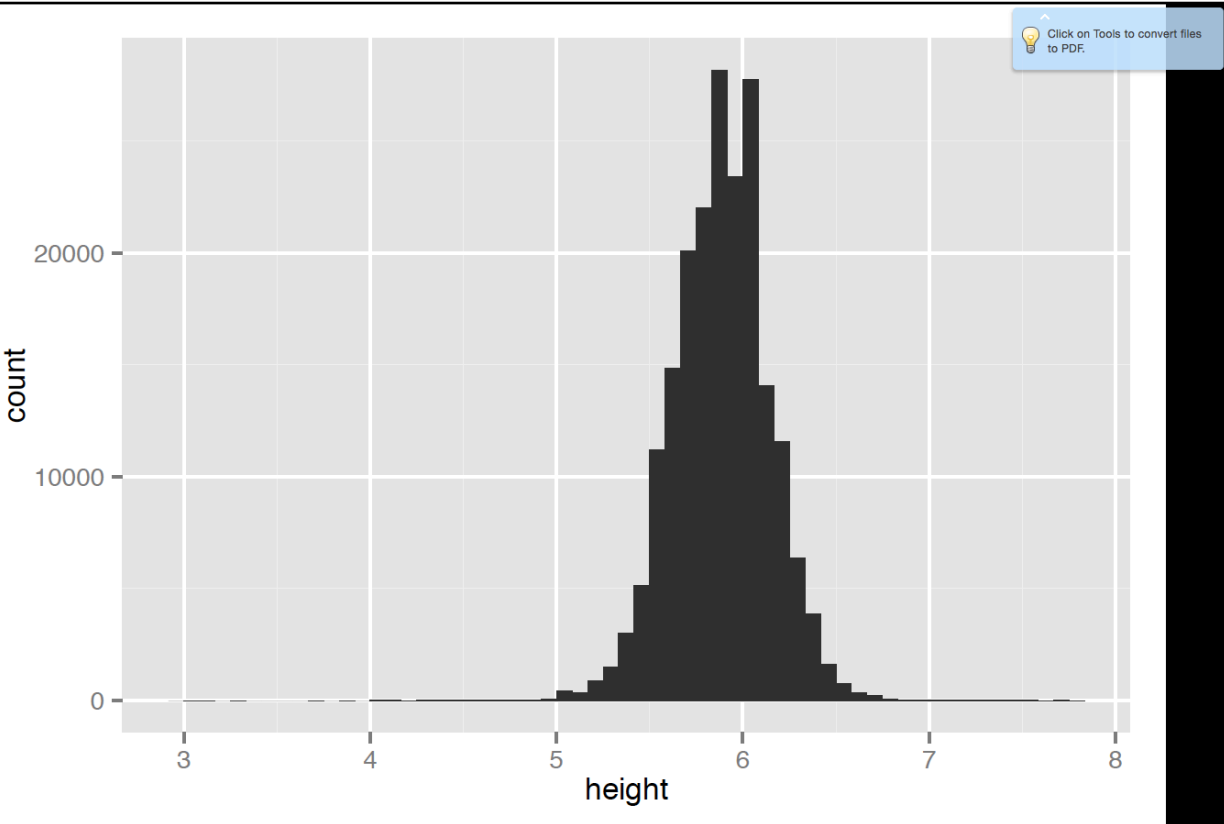time series
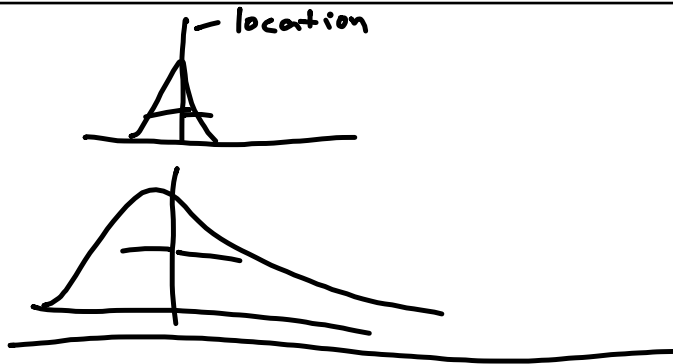   └ 1 individual through time

— location

Descriptive / Summary Statistics

Mean
Median } location 1)   3) Shape
node

sd / variance } spread 2)
IQR

$$\overline{X} = \frac{X_1 + X_2 + \ldots + X_N}{N} = \frac{\sum\limits_{i=1}^{N} X_i}{N}$$

$\overline{bmi}$

Sample mean

index	unordered data	ordered data	Percentile
1	30.6	21.9	0.00
2	21.9	24.2	11.11
3	27.8	25.6	22.22
4	34.5	27.8	33.33
5	32.6	29.2	44.44
6	35.2	30.6	55.56
7	24.2	32.6	66.67
8	25.6	34.5	77.78
9	41.5	35.2	88.89
10	29.2	41.5	100.00

Handwritten annotations:

Inter-Quartile Range = IQR

Q3 - Q1

Q1 — (25.6)

Q2 — 29.2 > $\dfrac{29.2 + 30.6}{2}$

Q3 — (34.5)

sample
variance

$$S_x^2 = \frac{(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \cdots + (x_N - \bar{x})^2}{N-1}$$
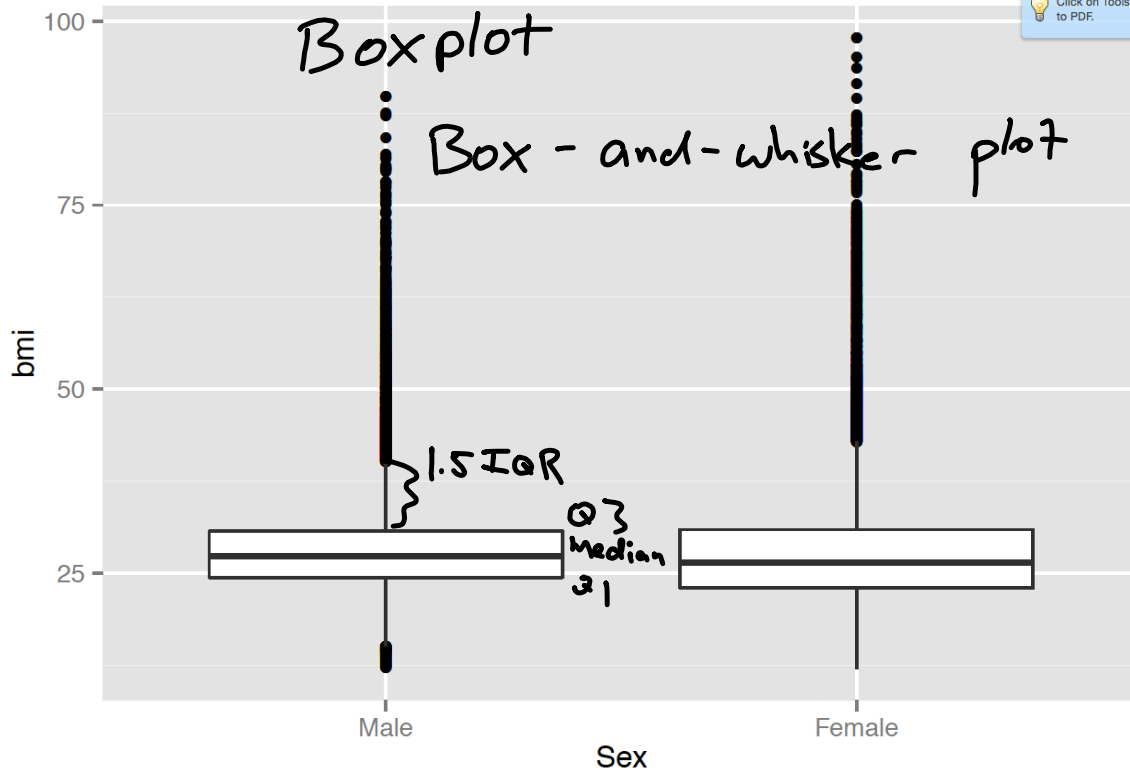
avg dist. squared

$$\frac{\sum (x_i - \bar{x})^2}{N-1} \qquad \sum_i$$

$$S_{bmi}^2 = \text{variance}$$

$$S_{bmi} = \sqrt{S_{bmi}^2} = \text{standard deviation}$$

Boxplot

Box - and - whisker plot

1.5 IQR

Q3
Median
Q1

NAME Amelie Doyle   DATE 1-15-15 PERIOD 1

Multi-Part Lesson 2 PART B

Homework Practice
Box-and-Whisker Plots

Draw a box-and-whisker plot for each set of data.

1. ages of children taking dance classes: 10, 8, 9, 9, 10, 12, 14, 10, 16

X X X X   median= 10
8 9 9 10 10 12 14 14 16   IQ = 9
     OR = 14
     Range = 9

6 8 10 12 14 16 18

2. prices, in dollars, of bicycles: 150, 184, 186, 120, 145, 170, 125, 130, 145, 190, 140

120   125 130 184 136 140 145 145 150 170 190
median = 140
IQ = 130
OR = 150
Range = 70

120 130 140 150 160 170 180 190

3. PRODUCTS Use the box-and-whisker plot that shows the average prices in cents per pound farmers received for eggs and wool.

Prices per pound received (¢)

wool

eggs

0 20 40 60 80 100 120 140 160

a. How do the median egg prices and the median wool prices compare?

They are both between 60 & 70d

b. How do the range in egg prices and the range in wool prices compare?

The wool range is greater than the egg range. The wool prices has an outlier

c. In the wool prices, which quartile shows the greatest spread of data?

The last quartile because its range is from 80 to 140.

d. About what percent of the data for the wool prices is above the upper quartile for the egg prices?

About 50%

e. In general, do farmers get higher prices for eggs or wool? Justify your reasoning.

Wool because 50% of the wool prices are greater than the upper prices.

For more practice, go to www.connected.mcgraw-hill.com.

26   **Course 2 · Statistical Displays**

average dice value against number of rolls

Ic
- Water
- Evergreen Needleleaf forest
- Evergreen Broadleaf forest
- Deciduous Needleleaf forest
- Deciduous Broadleaf forest
- Mixed forest
- Closed shrublands
- Open shrublands
- Woody savannas
- Savannas
- Grasslands
- Permanent wetlands
- Croplands
- Urban and built–up
- Cropland/Natural vegetation mosaic
- Barren or sparsely vegetated