Chapter 5

Understanding and Comparing Distributions

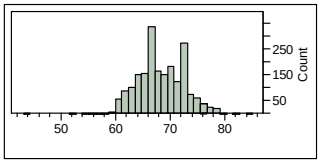
At the end of this chapter, you should be able to

- Compare and contrast the distribution of a quantitative variable between two or more groups.

Height of Stat 101 Students

- Who?
- What?

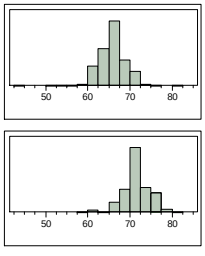
Height of Stat 101 Students



Groups

- Gender?

Histograms of Female and Male Heights



Number of HRs per Season

- Two Players
  - Barry Bonds
  - Hank Aaron

Barry Bonds

Year	HR	Year	HR	Year	HR
86	16	93	46	00	49
87	25	94	37	01	73
88	24	95	33	02	46
89	19	96	42	03	45
90	33	97	40	04	45
91	25	98	37	05	5
92	34	99	34	06	26
				07	28

Hank Aaron

Year	HR	Year	HR	Year	HR
54	13	62	45	70	38
55	27	63	44	71	47
56	26	64	24	72	34
57	44	65	32	73	40
58	30	66	44	74	20
59	39	67	39	75	12
60	40	68	29	76	10
61	34	69	44		

Stem and Leaf Display Comparison

Comparison of Five Number Summaries

	Heights	
	Female	Male
Min		
Q1		
Median		
Q3		
Max		

Comparison of Five Number Summaries

	Home Runs Per Season	
	Barry Bonds	Hank Aaron
Min		
Q1		
Median		
Q3		
Max		

Graph of Five Number Summary

- Boxplot
  - Box _____.
  - Line in the box marks the _____.

Boxplot

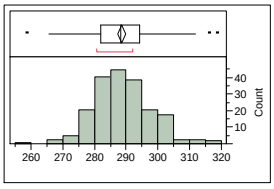
- Whiskers and Outliers
  - Calculate Q1 – 1.5*IQR
  - If Min < Q1 – 1.5*IQR
    - Whisker out to Q1 – 1.5*IQR
    - Points less than Q1 – 1.5*IQR denoted by dots
  - If Min > Q1 – 1.5*IQR
    - Whisker out to Min

Boxplot

- Whiskers and Outliers
  - Calculate Q3 + 1.5*IQR
  - If Max > Q3 + 1.5*IQR
    - Whisker out to Q3 + 1.5*IQR
    - Points greater than Q3 + 1.5*IQR denoted by dots
  - If Max < Q3 + 1.5*IQR
    - Whisker out to Max

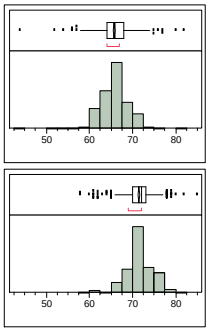
Boxplot Example

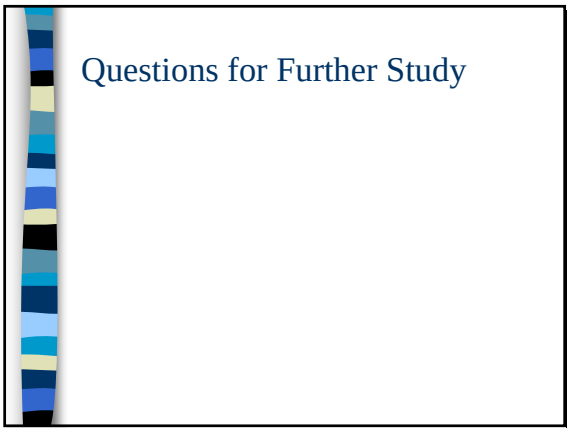
- Average Driving Distance for 202 golfers on PGA Tour



Boxplot Example

Comparing Heights with BoxPlots




Questions for Further Study