

# Chapter 1 EXPLORING *Data*

LOOKING FOR PATTERNS AND DEPARTURES FROM PATTERNS

## Chapter Objectives

- Use a variety of graphical techniques to display a distribution. These should include bar graphs, pie charts, stemplots, histograms, ogives, time plots, and boxplots.
- Interpret graphical displays in terms of the shape, center, and spread of the distribution as well as gaps and outliers.
- Use a variety of numerical techniques to describe a distribution. These should include mean, median, quartiles, five-number summary, interquartile range, standard deviation, range, and variance.
- Interpret numerical measures in the context of the situation in which they occur.
- Learn to identify outliers.
- Explore the effects of a linear transformation of a data set.

*This chapter introduces you to the concept of an Exploratory Data Analysis. You will learn how to use a variety of graphical techniques to display data as well as how to describe distributions numerically. Emphasis will be placed on interpreting information from these summaries in the context of the data.*

## CHAPTER 1

- Introduction
- Describing Distributions with Numbers
  - Compute the mean and median
  - Explain “resistant measure”
  - Identify when to use mean vs median
  - Identify quartiles and IQR
  - Use the five-number summary to construct a boxplot
  - Use 1.5IQR Rule to identify outliers
  - Compute standard deviation and variance
- Displaying Distributions with Graphs
  - Exploratory Data Analysis
  - Distribution of a Variable
  - Categorical vs. Quantitative
  - Construct Graphical Displays
  - Describe Shape, Center, Spread, Gaps, Outliers

MON	TUE	WED	THU	FRI
	<b>11 Chapter 1</b>	<b>12 Sect 1.1</b>	<b>13 Sect 1.1</b>	<b>14 Sect 1.1</b>
	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Case Study</li> </ul>	<ul style="list-style-type: none"> <li>• Exploratory Data Analysis</li> <li>• BarGraphs, PieCharts</li> <li>• DotPlots, StemPlots</li> </ul>	<ul style="list-style-type: none"> <li>• Histograms</li> </ul>	<ul style="list-style-type: none"> <li>• Ogives, TimePlots</li> <li>• Review EDA</li> </ul> <p style="text-align: center;"><b>Quiz</b></p>
		1.1-1.3, 1.5	1.7, 1.8, 1.10-1.13, 1.18	Graphical Display Practice
<b>17 Sect 1.2</b>	<b>18 Sect 1.2</b>	<b>19 Sect 1.2</b>	<b>20 Sect 1.2</b>	<b>21 Sect 1.2</b>
<ul style="list-style-type: none"> <li>• Measures of Center</li> <li>• Mean and Median</li> </ul>	<ul style="list-style-type: none"> <li>• Measures of Spread</li> <li>• Quartiles</li> <li>• 5-Number Summary</li> </ul>	<ul style="list-style-type: none"> <li>• Variance and Standard Deviation</li> <li>• Transformations</li> </ul>	<ul style="list-style-type: none"> <li>• Comparing Distributions</li> </ul>	<b>Quiz</b>
1.27, 1.28, 1.30-1.32	1.33, 1.36, 1.37	1.39, 1.40, 1.45, 1.46	1.47, 1.50, 1.54	<b>AP 2006 #1, 2001 #1</b>
<b>24 Review</b>	<b>25 Exam</b>			
<b>Chapter Review Case Study</b>	<b>Chapter 1 Exam</b>			
Review Problems				