

# Chapter 4 MORE ABOUT *Bivariate*

R E L A T I O N S H I P S

*Chapter 3 focused on methods for describing linear relationships in bivariate data. This chapter introduces you to the methods used to describe nonlinear bivariate relationships. Further, you will be introduced to methods for describing categorical data.*

### Chapter Objectives

- Identify settings in which a transformation might be necessary in order to achieve linearity.
- Use transformations involving powers and logarithms to linearize curved relationships.
- Explain what is meant by a two-way table, and describe its parts.
- Give an example of Simpson's Paradox.
- Explain what give the best evidence for causation.
- Explain the criteria for establishing causation when experimentation is not feasible.

## CHAPTER 4

- Transforming to Achieve Linearity
  - Power and Log Transformation
  - Exponential vs Power Models
- Establishing Causation
  - Correlation vs Causation
  - Common Response
  - Confounding
- Relationships between Categorical Variables
  - Two Way Tables
  - Marginal Distributions
  - Conditional Distributions

MON	TUE	WED	THU	FRI
<b>29 Sect 4.1</b>	<b>30 Sect 4.1</b>	<b>31 Sect 4.1</b>	<b>1 Quiz</b>	<b>2 End of QI</b>
• Transforming to Achieve Linearity	• Exponential and Power Models	• Nonlinear Modeling Practice	<b>Quiz 4.1</b>	<b>No School</b>
Read 4.1, Do 1-3	Do 5,6,8, 11, 12	Do 16, 17, 19	Read "How to Lie..." Ch8	Read 4.2
<b>5 Sect 4.2</b>	<b>6 Sect 4.2</b>	<b>7 Sect 4.3</b>	<b>8 Sect 4.3</b>	<b>9 Exam</b>
• Categorical Relationships	• Simpson's Paradox	• Establishing Causation	• The Question of Causation	<b>Review</b>
23-25, 27	36-38	41-48	Case Closed	50, 56, 58
<b>12 Exam</b>	<b>13 Part I Review</b>	<b>14 MC Exam</b>		
<b>Chapter 4 Exam</b>	• Review Describing Data, Ch1-4	<b>Part I Multiple Choice Exam</b>		

*"Numbers are like people...torture them long enough and they'll tell you anything..."*