

CHAPTER 5

Modeling Variation with Probability

Section 5.1 What is Randomness?

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important terms include **random, probability, theoretical probability, empirical probability, simulation.**

Be sure to also read and study the key points, highlighted in the blue boxes in the text.

Be able to

- Understand that true randomness is difficult to achieve without use of a computer or other randomizing device.
 - Given a probability experiment, determine if it is an example of an **empirical** or **theoretical probability**
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Section 5.2 Finding Theoretical Probabilities

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important terms include: **sample space, event, complement of an event, Venn diagram, AND, inclusive OR, mutually exclusive events.**

Be sure to also read and study the key points, highlighted in the blue boxes in the text.

- Read carefully and try to understand each of the probability rules given in this section. Eventually you will be asked to write them out without use of your notes or textbook .
 - Try to create your own an example for each of the probability rules.
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Section 5.3 Associations in Categorical Variables

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important terms include **conditional probability, associated events, independent events, the multiplication rule.**

Be sure to also read and study the key points, highlighted in the blue boxes in the text.

- Focus on understanding conditional probability
 - Be able to recognize a conditional probability in context
 - Study and think about the difference between a conditional probability and one requiring the use of AND
 - Study the notation of conditional probability
 - Try to understand the formula for conditional probability
 - Study the *informal* meaning of independent events
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Section 5.4 Finding Empirical Probabilities

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important term: **influential points, aggregate data, extrapolation, regression toward the mean, coefficient of determination.**

Be sure to also read and study the key points, highlighted in the blue boxes in the text.

- Study the notions of independence and associated events from Section 5.3
 - Be able to determine if two events are independent or associated
 - Study and apply the Multiplication Rule for a Sequence of independent events
 - Be able to stat the Law of Large Numbers
 - Be able to apply the Law of Large Numbers
 - Know the recommended number of simulations the book recommends
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