probability model – describes all possible outcomes and says how to assign probabilities to any collection of outcomes

sample space – collection of unique outcomes of a random circumstance

event – a collection of outcomes

Probability Rules
1. Any probability is a number between 0 and 1.

2. All possible outcomes together must have probability 1.

3. The probability that an event does not occur is 1 minus the probability that the event does occur.

4. If two events have no outcomes in common, the probability that one or the other occurs is the sum of their individual probabilities.
5. Multiplication Rule: If two events are independent then $P(A \text{ and } B) = P(A) \cdot P(B)$

Independence means that the occurrence of event A does not affect the occurrence of event B

Conditional Probability (not in text): $P(A|B) = \text{Probability that A occurs given that B occurred}$

General Multiplication Rule (not in text): $P(A \text{ and } B) = P(A) \cdot P(A|B)$ or $P(B) \cdot P(B|A)$
Tree Diagram: Multiply the probabilities and conditional probabilities along the path you took to get the probability of finishing at that end of that path.

simulation – using random digits from a table or from computer software to imitate chance behavior

sampling distribution – tells what values a statistic takes in repeated samples from the same population and how often it takes those values