

## **Section 5.4 IRA**

### ***Introduction***

Screen 1: List of Objectives

### ***Objective 1: Compute Conditional Probabilities***

Screen 1: Definition of Conditional Probability – You should get used to the notation for conditional probabilities. Of all the probability notation, this is the one that will help you to know.

Screen 2: Example 1 is a basic conditional probability problem. You should make sure to watch the video solution.

Screen 3: This screen uses probabilities derived from tables to introduce the conditional probability formula. This formula is quite important, and knowing the notation will help you to determine how to set up the formula.

Screen 4: Example 2 uses the conditional probability formula, and shows the importance of setting up the notation. You need to know which event is given, and which event you are looking for the probability of. You should make sure to watch the video solution.

Screen 5: This problem is based on Example 2 on the previous screen.

Screen 6: Example 3 shows how to use the conditional probability formula when you are given probabilities instead of a contingency table. You should make sure to watch the video solution.

Screen 7: This problem is based on Example 3 on the previous screen.

### ***Objective 2: Compute Probabilities Using the General Multiplication Rules***

Screen 1: The introduction of the formula for the General Multiplication Rule. We can use this to find  $P(A \text{ and } B)$  whether  $A$  &  $B$  are independent or not.

Screen 2: Example 4 shows how to use the general multiplication rule. You should make sure to watch the video solution.

Screen 3: This problem is based on Example 4 on the previous screen.

Screen 4: Example 5 is another application of the general multiplication rule. There are two approaches for a problem like this. Be sure to watch the video solution. This problem has a lot in common with the “at least 1” probabilities from Section 5.3.

Screen 5: This problem is based on Example 5 on the previous screen.

Screen 6: Example 6 is another application of the general multiplication rule. This problem shows that under certain conditions allow you to treat events as if they are independent, even if they are not. Be sure to watch the video solution.

Screen 7 – Summary of the condition that allows you to treat events as independent, if the sample size  $n$  is less than 5% of the population size  $N$ .

Screen 8: This problem is based on Example 6 from Screen 6.

Screen 9: Definition for determining if two events are independent.

Screen 10: End of Section