Section 12.2 IRA Guide

Introduction

Screen 1: Review – Probability rules and independent events, Section 5.3

Screen 2: Review – Formula for the mean of a binomial distribution, Section 6.2

Screen 3: I have deleted the problem associated with "Contingency Tables and Association", so you should just see a blank screen.

Screen 4: Review – Two Proportion Test from Section 11.1

Screen 5: List of Objectives

Objective 1 – Perform a Test for Independence

Screen 1: Background for independence test, which looks to determine if there is an association or relation between two categorical variables. A quick read will suffice.

Screen 2: More background.

Screen 3: Definition of chi-square test for independence. Be sure to watch the "In Other Words" video, covering the null and alternative hypotheses.

Screen 4: Example 1 covers finding the expected counts for each cell. We will not do these by hand, but you should watch the "by hand" video solution so you can repeat this if needed. We will learn later about how to have StatCrunch do this.

Screen 5: A more direct (by hand) way to find expected frequencies for each cell. Again, we will figure out how to do this later using StatCrunch.

Screen 6: Test Statistic for chi-square independence test.

Screen 7: 5 steps for independence test.

Screen 8: Example 2 shows how to perform a chi-square independence test. Be sure to watch the StatCrunch video solution.

Screen 9: This exercise is based on Example 2 on the previous screen. You can compute the expected frequencies by asking StatCrunch to display the expected frequencies.

Screen 10: Summary of Example 2 results.

Square 11: Example 3 shows how to create a conditional distribution and bar graph. This type of problem gives students trouble in the homework, so be sure to watch the StatCrunch video solution.

Screen 12: This exercise is based on Example 3 on the previous screen.

Objective 2 – Perform a Test for Homogeneity of Proportions

Screen 1: Definition of this test, which is similar to the test for independence.
The test for independence measures two variables for each individual. The test for homogeneity are

based on the measurement of one variable for two (or more) different groups of individuals.
The null and alternative hypotheses will be different from the test for independence.

Screen 2: Explanation of the difference between the test for homogeneity of proportions and the test for independence.

Screen 3: Example 4 shows how to perform a test for homogeneity of proportions. Be sure to watch the StatCrunch video solution.

Screen 4: This exercise is based on Example 4.

Screen 5: A quick explanation of what to do if the conditions for these tests are not met.

Screen 6: End of Section