

Assignment

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For all "hypothesis testing" questions, make sure to provide explicit answers with your work shown for all 11 steps of a hypothesis test.

Hurricane Strengths¹

Atmospheric scientists have hypothesized that the strengths of hurricanes has increased in recent years due to changes in the climate. The Saffir-Simpson Hurricane Wind Scale categorizes the strength of hurricanes based on the sustained wind speed. Higher numbers on this scale indicate a strong hurricane, with categories 3, 4, and 5 considered “major hurricanes.” Researchers recorded the number of hurricanes in each category (note that categories 1 and 2 were combined as were categories 4 and 5) from the first and second half of the 20th century in the table below.

	Cat 1 & 2	Cat 3	Cat 4 & 5
1901-1950	51	26	8
1951-2000	44	21	7

Use this information to determine, at the 10% level, if the distribution of hurricanes into the strength categories differs between the two time periods.

Response to Hello

Eight American undergraduate women were part of a study to determine if whether or not a response is received depends on the size of group addressed (Jones and Foshay 1984). Each student was instructed to say “Hello” to strangers or groups of strangers that they encountered around campus, on the streets in town, in stores, etc. They were told to not make direct eye contact with anyone in the group but to look in the general direction of the group focusing on the shoulders or hair of individuals or the general middle of a group. The students recorded a variety of information for each encounter including how many individuals were in the group and whether at least one person responded to the greeting. The study included 119 people greeted individually; 94 groups of two or three; and 27 groups of four, five or six. They found that 92 of the individuals; 65 of the groups of two or three; and 13 of the groups of four, five, or six responded to the greeting. Determine, at the 5% level, if there is a significant difference in the distribution of responses (i.e. responded to the greeting or not) among the three different sizes of groups (i.e., individuals; two or

three; or four, five, or six).
