

1. **Bacteria in Hospital Carpeting** Researchers wanted to determine if carpeted rooms contained more bacteria than uncarpeted rooms. To determine the amount of bacteria in a room, researchers pumped the air from the room over a Petri dish at the rate of 1 cubic foot per minute for eight carpeted rooms and eight uncarpeted rooms. Colonies of bacteria were allowed to form in the 16 Petri dishes. The results are in the following table.

Carpeted Rooms (bacteria/cubic foot)				Uncarpeted Rooms (bacteria/cubic foot)			
11.8	10.8	7.1	14.6	12.1	12	3.8	10.1
8.2	10.1	13	14	8.3	11.1	7.2	13.7

Do carpeted rooms have more bacteria than uncarpeted rooms at the  $\alpha = 0.05$  level of significance?

**2. Getting Taller?** To test the belief that sons are taller than their fathers, a researcher randomly selects 13 fathers who have exactly one male son. The researcher records the height of both the father and the son in inches and obtains the following data.

	1	2	3	4	5	6	7	8	9	10	11	12	13
Height of Father	70.3	67.1	70.9	66.8	72.8	70.4	71.8	70.1	69.9	70.8	70.2	70.4	72.4
Height of Son	74.1	69.2	66.9	69.2	68.9	70.2	70.4	69.3	75.8	72.3	69.2	68.6	73.9

Use an  $\alpha = 0.1$  level of significance to test the claim that sons are taller than their fathers.