Section 3.3

Measures of Central Tendency and Dispersion from Grouped Data

Objectives

- Approximate the mean of a variable from grouped data
- Compute the weighted mean
- Approximate the standard deviation of a variable from grouped data

The National Survey of Student Engagement is a survey that (among other things) asked first year students at liberal arts colleges how much time they spend preparing for class each week. The results from the 2007 survey are summarized below. Approximate the mean number of hours spent preparing for class each week.

1 2 3 4 5

Hours	0	1-5	6-10	11-15	16-20	21-25	26-30	31-35
Frequency	0	130	250	230	180	100	60	50

First determine the class midpoint of each class. The class midpoint is found by adding consecutive lower class limits and dividing the result by 2

$\frac{1+6}{2} = 3.5$

L_1	L_2
3.5	130
8.5	250
13.5	230
18.5	180
23.5	100
28.5	60
33.5	50

$\bar{x} = 14.75$

Approximate the standard deviation number of hours spent preparing for class each week.

Hours	0	1-5	6-10	11-15	16-20	21-25	26-30	31-35
Frequency	0	130	250	230	180	100	60	50

$S_x = 8.1$

L_1 (Mid Points) L_2 (Freq)

1-Var Stats L_1, L_2

Bob goes to the "Buy the Weigh" Nut store and creates his own bridge mix. He combines 1 pound of raisins, 2 pounds of chocolate covered peanuts, and 1.5 pounds of cashews. The raisins cost \$1.25 per pound, the chocolate covered peanuts cost \$3.25 per pound, and the cashews cost \$5.40 per pound. What is the cost per pound of this mix?

L_1	L_2
1.25	1
3.25	2
5.40	1.5

$\bar{x} = \$3.52$ per pound