
**Bonus Assignment worth 1.5 applied to exam 4 raw score.
Submit this assignment in class 4-19-10.**

The problem is to analyze the data

x = exam 2 grade

y = exam 3 grade

using regression tools. The following sample was gathered by equi-space stepping through the rolls of sections 9-12 and is therefore neither equal probability nor with-replacement, but it will suffice for illustrating methods applicable to that better sampling.

exam 2 grades **4.29, 3.43, 3.14, 2.86, 3.14, 4.29, 1.43, 3.43, 4.29, 3.71, 2.57, 3.71**

exam 3 grades **3, 3, 1, 1, 4.33, 3.33, 1, 1.67, 3.33, 4, 2.67, 3.33.**

This is paired data so the first sample individual has exam 2 grade of 4.29 and exam 3 grade of 3.

Your submission should be on the front and back of a single standard sheet of 8.5 by 11 paper. You will undertake the following:

1. Determine the following from the data

n

\bar{x}

\bar{y}

s_x

s_y

r

slope of regression of y on x

a 95% z-based regression-based CI for μ_y if we know that

$\mu_x =$ **3.43**.

plot of regression of y on x with scatterplot of (x, y) data

regression prediction of exam **3** grade for exam 2 grade = 3.14

residuals for each of the two points having $x = 3.14$

the estimated sd of the exam 3 scores for all students of sections 9-12

If this were a 2D normal population, the estimated sd of the exam 3 scores of all students of 9-12 who earned 3.14 on exam 2 is