Linear Regression and Correlation: Regression Lab II (edited: Teegarden)*

Mary Teegarden

Based on *Linear Regression and Correlation: Regression Lab II*† by

Barbara Illowsky, Ph.D.

Susan Dean

This work is produced by OpenStax-CNX and licensed under the
Creative Commons Attribution License 2.0‡

Abstract

This module provides a lab of Linear Regression and Correlation as a part of Collaborative Statistics collection (col10522) by Barbara Illowsky and Susan Dean. Labs changed to incorporate mini-tabs.

Correlation/Regression Lab
Name:_____

1 Student Learning Outcomes:

* The student will calculate and construct the line of best fit between two variables.
* The student will evaluate the relationship between two variables to determine if that relationship is significant.

2 I. Collect the Data

Select 15 textbooks and record the number of pages in the textbook and the cost. Be sure to select books from a variety of disciplines. Be sure to select either all hard cover or all soft cover books as the binding is a factor in the cost. The data may be collected from the college bookstore or a website, however indicate where the data was obtained.

1. Complete the table.

*Version 1.2: Jul 14, 2009 9:43 pm -0500
†http://cnx.org/content/m17087/1.4/
‡http://creativecommons.org/licenses/by/2.0/

Discipline	Number of pages	Cost of textbook

Table 1

2. Which variable should be the dependent variable and which should be the independent variable? Why?

dependent variable:_____

independent variable:_____

3. Enter your data into your Minitab, and create a scatter plot and attach it to this lab.

Does there appear to be a relationship between the size of the book and the cost? dependent variable: Explain using complete sentences.

3 II. Analyze the Data

Using Minitab, determine the following information: *(Include your session window with this lab.)*

1. correlation coefficient = _____ 2. p-value = _____

3. Is there significant correlation? _____Why or why not? Answer with 1-3 complete sentences.

4. What does the correlation imply about the relationship between the number of pages and the cost? Answer with 1-3 complete sentences.

5. Using Minitab, calculate the regression line: _____

6. Create a scatter plot with the regression line and include it with this lab.

Does the line seem to fit the data? _____ Why? Answer with 1-3 complete sentences.

7. Using the data you obtained, supply an answer for the following scenarios:

a. For a textbook with 400 pages, predict the cost:_____

b. For a textbook with 600 pages, predict the cost: _____

c. How many pages would you expect a book to have if it cost $58? _____