

**Worth:** 30 points

**Project Due:** **On or before Friday, October 29<sup>th</sup>, 2010, by 5pm.** Turn it in during class, or in my mailbox in Griffin Floyd 103 - the mailbox is UNDER the label Ripol. **Late Projects** will be accepted until Friday, November 5<sup>th</sup>, in class, but will result in a 10-point penalty.

**Purpose:** To study the relationship between texting habits and Facebook friends for UF students and learn how to perform Simple Linear Regression using Minitab.

### 1. Collect the data

You need to collect data on the number of texts sent the previous day (or on a typical day), number of Facebook friends and gender of at least 30 UF students. Explain to the participants what the data will be used for. The data should be treated confidentially.

You may collect data on yourself, you friends, classmates, or students that you don't know. This is NOT a random sample, but it would be quite difficult to do it at random.

A template for the data collection form is provided on the website. You should **cut the slips** before hand, and **bring an envelope** with you, so that participants can place the slips in the envelope without anyone else handling them.

**2. Get ready to use Minitab** – you can buy it, rent it, download it for free (30 days) or use it in the CIRCA Labs (PC only) it any time. See course website for more details.

### 3. Enter the data into Minitab-

- Create a column for **gender** (male or female), a column for **#texts** and a column for **#FF** (Facebook Friends). The column names go on the very top row.
- The data for each subject goes into one row.
- You should have data in three columns and a **minimum of 30 rows of data**.

**Note:** The column identifiers C1, C2, etc, change to C1-**T**, C2-**T**, etc, if the data in them is text. The only column that should be identified as text is gender. The height and weight columns should be numerical. If you accidentally write any text in them you will need to re-enter the data using new columns or copy and paste them in new columns, making sure the labels are on the top row above row number 1.

4. **Perform the regression analysis –**
  - a. On the top menu, go to Stat – Regression – Fitted Line Plot
  - b. Select **#texts for response (y)** and **#FF for predictor (x)**.
  - c. Make sure that Linear is selected.
  - d. Click OK
  
5. **Prepare your report using a word processor.** The report should be **no more than 2 pages** long, and include the following (see example on last page):
  - a. **Your NAME and UFID number, and the course information including period.**
  - b. **The data you used (5pts)** – with the left mouse button, select the three columns of data from the spreadsheet, then use the “copy” function in Minitab, and paste it into your document.
  - c. **The plot created by Minitab (5pts)** – using the mouse, right-click on the graph, select “Copy Graph” and paste it into your document. You can resize your graph in the word processor, usually by dragging a corner of it to the desired size.
  - d. **The Regression Analysis created by Minitab (5pts)** – with the left mouse button, select the text that appears on the Session window, then use the “copy” function in Minitab, and paste it into your document.
  - e. **A brief interpretation of the slope, intercept and  $R^2$  of the line. (6 pts)**
  - f. **A brief interpretation of the results of the ANOVA test. (4 pts)**
  - g. **STAPLE your report, if more than one page – no paper clips, tape, crimped pages, etc. (5 pts)**

**NOTE – the sample project uses different variables and only 20 participants. Your project needs to be about the variables explained above and use a minimum of 30 participants.**

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**TO OUR PARTICIPANTS:**

- **This is a confidential and voluntary survey.**
  
- **We are collecting data for our STA 3024 class project to study the relationship between texting and number of Facebook Friends for UF students.**
  
- **Please write down your information on the spaces provided. Then fold the paper and place it in the envelope.**
  
- **Thank you very much for participating.**

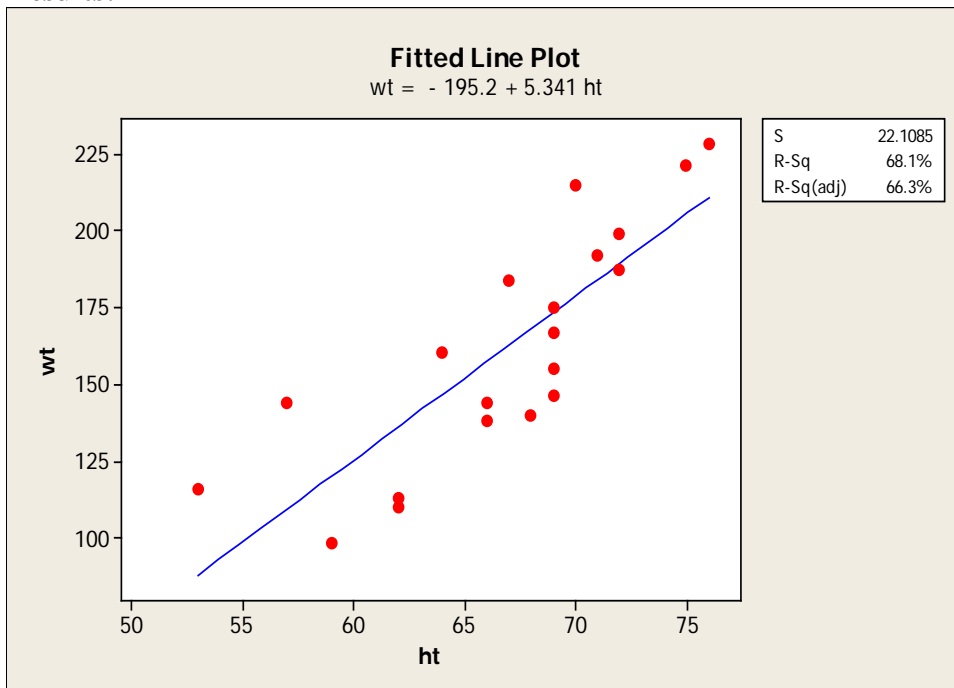
Jane Doe  
UFID 1234-5678

STA 3024, Spring 2010, 3<sup>rd</sup> period  
Project 1

**Data collected:**

gender	ht	wt
m	69	175
f	62	110
f	68	140
m	72	199
m	67	184
f	64	160
m	70	215
f	59	98
m	66	144
m	76	228
m	69	167
m	75	221
f	62	113
f	66	138
f	69	146
m	72	187
f	57	144
m	69	155
m	71	192
f	53	116

**Results:**



## Regression Analysis: wt versus ht

The regression equation is  
 $wt = -195.2 + 5.341 ht$

S = 22.1085    R-Sq = 68.1%    R-Sq(adj) = 66.3%

### Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	18750.6	18750.6	38.36	0.000
Error	18	8798.2	488.8		
Total	19	27548.8			

### Interpretations:

**Slope:** As the height of UF students increases by one inch, weight increases by 5.341 pounds, on average.

**Intercept:** Since a height of 0 inches is impossible, we do not interpret the intercept.

**R<sup>2</sup>:** 68.1% of the variability in UF student's weight is explained by their height.

**ANOVA test:** Since the p-value was reported as .000, we conclude that height is a good predictor of weight.