Lab Report #4

Format:

- **11 point Ariel font**
- **Cover page (Title, Name, Section, TA & Date)**
- **Report should be 4 pages of double spaced text**
- **Page numbers at bottom**
- **0.5" Margins on all sides**
- **Reference page (separate page)**
- **Graphs/tables are computer generated**
- **APA format (in-text citations & reference page)**

Topic:

There are many different methods to assess a person's body composition. Different methods may tell you about a person's body fat percentages (ie. Skinfold & BIA) while other methods tell you alternative information such as body measurement ratios (ie. Waist-hip & BMI). In this last lab report, you will be creating your own experiment using the 55 sets of data posted on blackboard. Using a linear regression analysis, you will see if two measures you select are significantly correlated and/or if one measurement can predict the value of another measurement. Then you will interpret what this actually means! You may select a topic from below or create your own to write about.

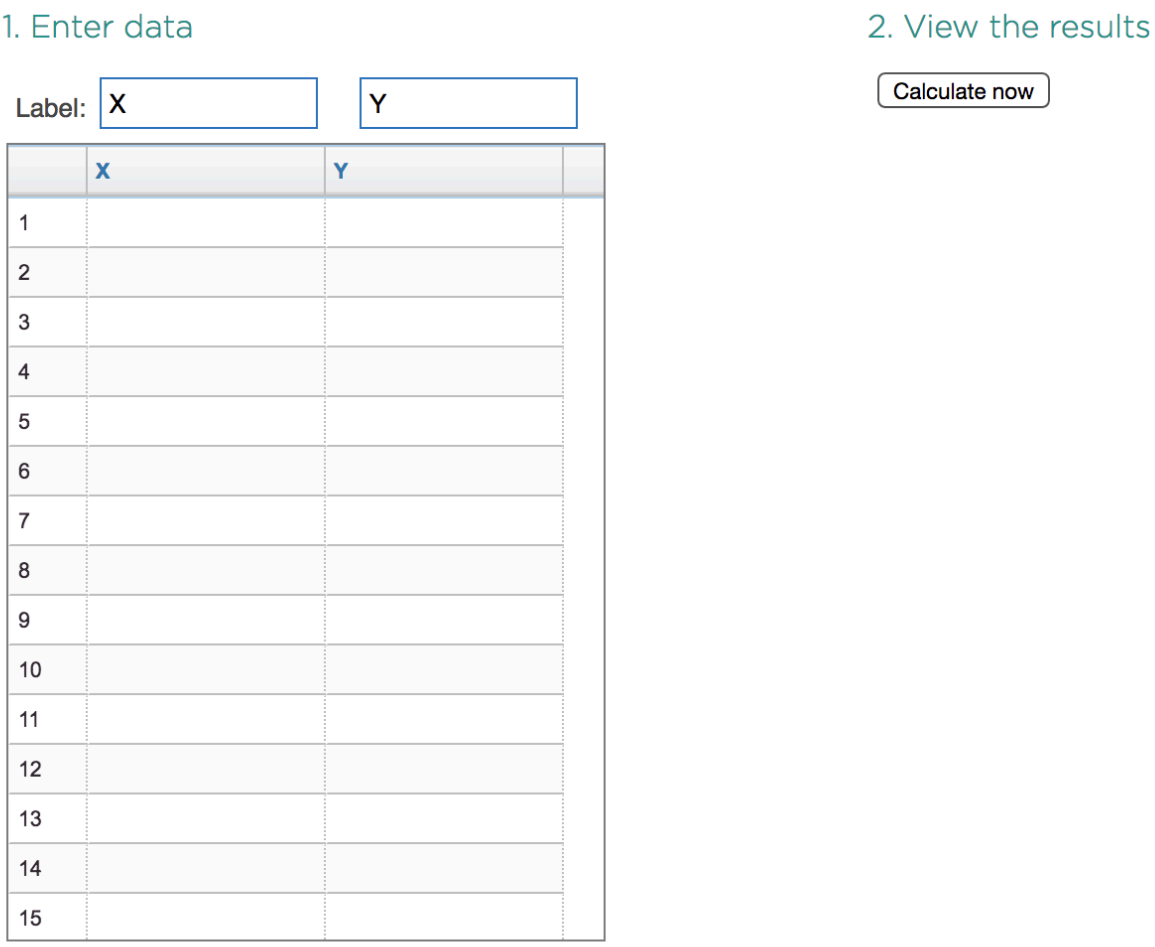
Potential topics:

- **Do the 7-site and 3-site skinfold tests give statically similar results?**
- **How does skinfold (7 or 3 site) accuracy compare to BIA accuracies?**
- **If you do a % body fat measurement (7 or 3 site skinfold; BIA), can you predict their body ratio (BMI, Waist-hip)**
- **Do the body ratio measurements (BMI & Waist-hip) give statistically similar results?**
- **If you know a person's body ratio measurements (BMI & Waist-hip), can you predict, with statistical accuracy, their body fat percentage (7, 3 site skinfold or BIA)?**
- **Or create your own topic! Don't be afraid to email your TA to see if a topic is valid for this analysis.**

Explanation of analysis

A linear regression analysis determines if there is a significant increase/decrease between two measures. If two different measurements are performed on the same set of participants, a linear regression analysis can be used to determine statistical significance of a correlation between the two measures. A P-value < 0.05 means the two measures are statistically correlated. P-value > 0.05 means the two measures are unrelated.

1) **Your lab instructor will post the data for your lab onto blackboard. Go to the website (http://graphpad.com/quickcalcs/linear1/). Insert the two rows of data you are using (remember, you are only using 2 of the 5 tests available). Add the proper labels. Click "Calculate now" button**



2) **The next screen will give you a graph and the result of your correlation! Be sure to record the P-value and R^2 value**

Hint: When writing this report, follow the outline below and the specifications given in the "Introduction to Lab Reports" presentation on blackboard.

Outline:

Cover page

Introduction

- **Give a brief background on body composition and measurements**
- **Give research based rationale on whether you believe the two tests will yield similar or different results**
  - **3-4 primary articles need to be WELL incorporated into this part of the introduction**
- **Explicitly state the purpose for this specific research paper**
- **Based on your rationale and the research you found, give a hypothesis on how you predict the two tests will compare (Explicitly state "Hypothesis")**

Methods

- **Written in past tense**
- **Include all relevant participant data at hand (number of participants, general age, ect.)**
- **Step by step instructions on how the measures were administered**
- **Describe how the data was analyzed**

Results

- **Include the graph between the two measures (no other graphs/tables)**
  - **Be sure to include all labels**
  - **Graphs should only be a few inches wide/tall**
- **Include a paragraph or two describing the results that you found**

Discussion

- **Briefly summarize the main findings of your research**
- **Was your hypothesis proven true? Why so?**
- **How do your results compare to the results of other scientists?**
  - **3-4 <u>additional</u> primary research articles need to be WELL incorporated in this part of the discussion**
- **What real world applications does this finding have? Be specific.**
- **Propose a future experiment (brief but specific) that would further your knowledge of body composition testing**

References (minimum of 6 primary articles)