I. Overview

A. Case study Guidelines
   During this course students will implement a research based intervention with a child referred for academic or behavioral difficulties. The case study requires several components with results presented both in written and oral formats. The case study should be representative of your best work, and include (a) evidence of your ability to use of data to make decisions (must include ecological data: CBA, Progress Monitoring, observations), and (b) evidence of your Intervention skills.

B. Completion of the Intervention Case study will involve the following steps:
   1. Identifying a child with academic difficulties (reading, math, spelling, homework completion, written expression)
   2. Conduct necessary assessments to validate the existence of an academic difficulty (you are not required to complete a full comprehensive evaluation)
   3. Determine instructional placement
   4. Establish realistic goal
   5. Select a research based intervention and design an intervention plan
   6. Conduct appropriate Progress Monitoring
   7. Report results: (See attached calculations for more information) 
      Graphs, Calculate Slope, Calculate Effect sizes

C. When designing your intervention plan, make sure to specify objectives, resources, and schedule for implementation.

II. Report Format
   - use the following headings when writing your report)
   - report should be written like professional journal articles.

I. Presenting Problem
   - Includes description of problem/target behavior
   - Need for intervention
   - Referrals and data indicating need for intervention
   - Conclude with a clear, concise goal statement which includes measurable criteria to determine a successful outcome

II. Background Information
   - Brief description of relevant background information relating to subject(s) and target behavior
   - For English Language Learners, indicate:
     o Language spoken at home
     o Country of birth
     o Number of years lived in this country
     o Previous educational history in primary language
     o Types of education program (bilingual program, ESL support) and proficiency level
III. Presentation

Students will present case study through an exit assessment consisting of an oral presentation of completed intervention case to program faculty.
Calculations:

1) **Slope**: The formula for calculating $b$ directly from raw data is:

$$ b = \frac{N \sum XY - (\sum X)(\sum Y)}{N \sum X^2 - (\sum X)^2} $$

Example: We first calculate $X^2$, $Y^2$, and $XY$

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<tr>
<th>X</th>
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$\bar{X} = 4.8 \quad \bar{Y} = 4.4$

The slope is then given by:

$$ b = \frac{5(126) - 24(22)}{5(134) - (24)^2} = \frac{630 - 528}{670 - 576} = \frac{102}{94} = 1.09 $$

OR Another Option:

2) Use the Excel Graph Program: Provides a tool for drawing a trend line (regression line). The regression equations are used for predicting a score.

Equation:

$Y = bx + a$

$Y =$ predicted score

$b =$ slope

$x =$ known score

$a =$ intercept

*The $b$ in the equation is the slope*

-Use the value of $b$ provided by Excel

Instructions for getting slope from Excel:

1) Enter data in spreadsheet
2) Highlight data
3) Click on charts
4) Select line graph
5) Click on data points that you want for the slope
6) Go to tools:
   - click the drop down menu in “charts” and select “add trendline”
   - go into options and place a checkmark in the boxes that are marked “set intercept” and “display equation”
   - the value before “x” displays the slope
3) **Effect Size:**

Cohen’s \( d \). Cohen’s \( d \), a statistic in standard deviation units, provides one way to compute effect size. This statistic represents the distance between the means of two groups in standard deviation units. To compute \( d \), use the following formula:

**Formula A** – for **increasing** target behavior (i.e. increasing reading words per minute)

\[
d = \frac{M_2 - M_1}{SD_{pooled}}
\]

**Formula B** – for **decreasing** target behavior (i.e. aggression)

\[
d = \frac{M_1 - M_2}{SD_{pooled}}
\]

\( M_1 \) = mean of group 1  
\( M_2 \) = mean of group 2  
\( SD_{pooled} \) = square root of the average of the two squared deviations

*In order to compute effect size, you first to need calculate standard deviation:

4) **Standard Deviation:**

\[
\sigma = \sqrt{\frac{\sum (X - \mu)^2}{N - 1}}
\]

1) Compute mean of the data  
2) Compute deviation by subtracting the mean from each value  
3) Square each individual deviation  
4) Add up the squared deviations  
5) Divide by one less the sample size  
6) Take the square root

*You may also find equations and formulas at [www.easycalculation.com]*