Key info: or Assessment 02, I encourage you to stretch yourself and start to understand how to apply the Shapiro-Wilk test to assess normality. At about page 187 Fields discusses the Komogorov-Smirnov (K-S) test for normality as well as the Schapiro-Wilk. You can find the steps to produce both of these tests beginning on this page. You can report the Shapiro-Wilk with the same formatting as the K-S test, just replace the *D* with a *W*(df)=value, p=value. For the example in the text Hygiene Day 1 the result would be *W*(810)=.996, p=.032. (Note another place to find how to produce the Shapiro-Wilk is in the Assessment 03 step by step guide for the t test).

Preparing your Report

* Generally, there are 3 things you need to do in every assessment
  + Create your SPSS output
  + Report the results of your output using APA formatting
  + Interpret the results of your output as it relates to either assumptions or hypothesis testing

**CRITERIA**

**Articulate the data analysis plan**

* Accurately articulates the data analysis plan. Names the four variables; specifies as categorical or continuous. States a research question, null hypothesis, and alternate hypothesis. There are no errors.

**Analyze statistical assumptions**.

* Accurately analyzes statistical assumptions. Includes correct output for the Shapiro-Wilk test. There are no errors of interpretation.

**Interpret statistical results and hypotheses.**

* Accurately interprets statistical results and hypotheses. Pastes the correct output; reports means and SDs for each group; reports the F-test and interprets against the null hypothesis; if significant, interprets post-hoc tests. There are no errors.

**Explain statistical conclusions, the limitations of the test, and possible alternative explanations**.

* Accurately explains statistical conclusions, the limitations of the test, and possible alternative explanations with no errors.

**Analyze the potential applications of the test in the field and their implications**.

* Thoroughly analyzes the potential applications of the test in the field and their implications with no errors or omissions.

**Communicate in a manner that is scholarly and professional, and adheres to APA style and formatting**.

* Exhibits strict and nearly flawless adherence to organizational, professional, and scholarly writing standards, including APA style and formatting.

**Scoring Guide**

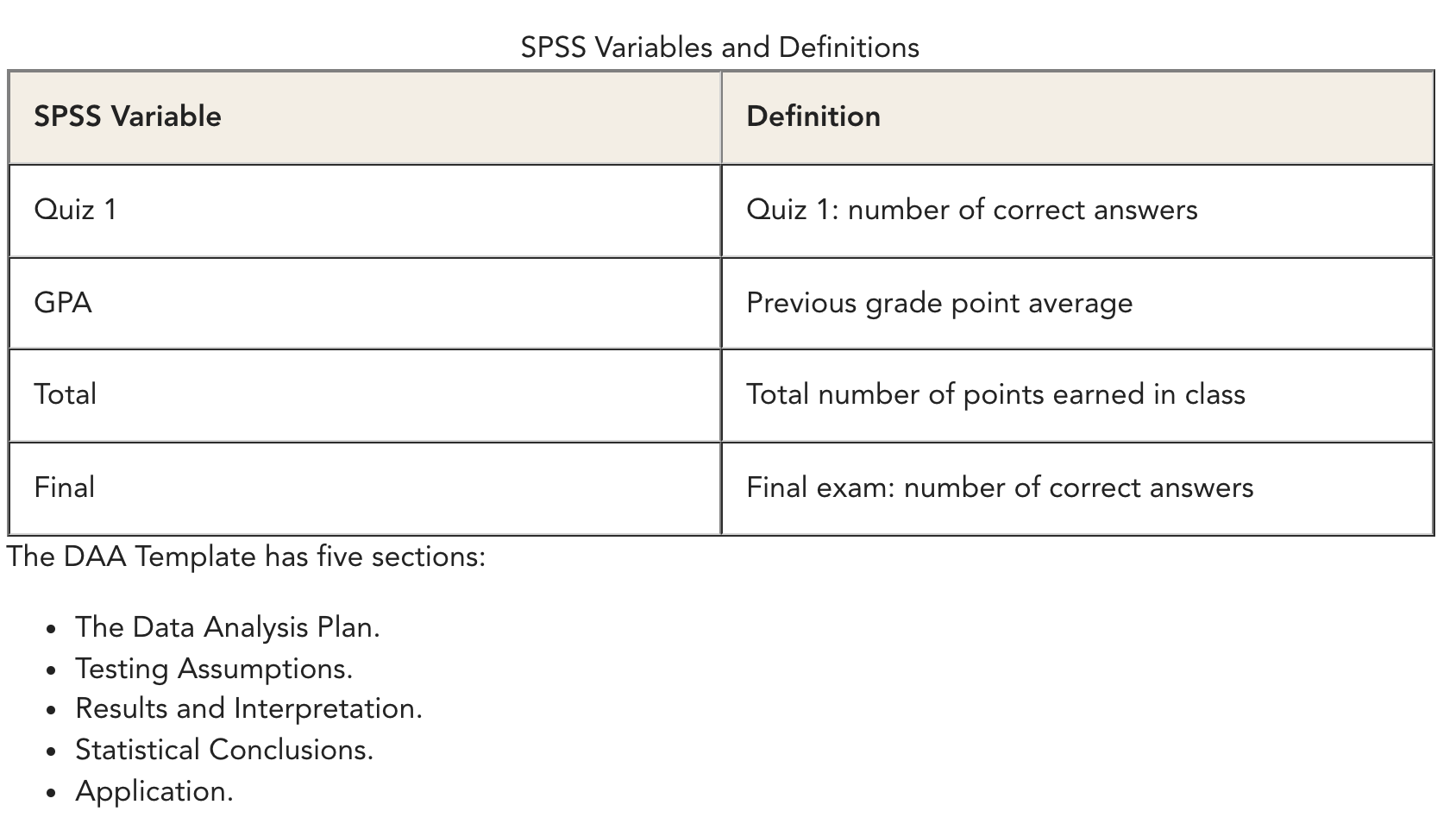
* Research Question, Hypotheses, Continuous and Categorical Variables
* Frame and state null and alternative hypotheses
* Identify continuous and categorical variables
* Analyzing Assumptions of Correlation
* The textbook discusses the assumptions of correlation in section 8.4
* I leave it you to review interval (continuous DVs) and outliers
* In this instance, the Scoring Guide specifically calls out the Shapiro-Wilk test for normality so you have to use it to assess the distributions of the variables you’re using assess for normality
* Shapiro-Wilk continued, see the Course Study Guide for Assessment 03 and the step by step for how to produce the Shapiro-Wilk.
* Komogorov-Smirnov (K-S) test for normality as well as the Schapiro-Wilk.
* Report the Shapiro-Wilk with the same formatting as the K-S test, just replace the *D* with a *W*(df)=value, *p*=value.
  + For the example in the text Hygiene Day 1 the result would be *W*(810)=.996, *p*=.032.
* Report the Shapiro-Wilk results for each variable’s distribution and state whether the assumption of normality has been met
* Interpret *p* values for statistical significance
* Report the Pearson Correlation using APA format. This is also discussed in the text in section 8.4.2
* Report and interpret the variable pairs with the least and greatest correlation.
* Report your Pearson Correlation results in APA format, for example r(103)=.63, *p*<.05 is an example of a moderately positive, significant correlation.
* Here is where you would interpret your correlation for the least and greatest pairs
* Determine if the correlation is significant per the *p* value (or confidence interval). State your conclusion to reject or accept the null hypothesis. If the result is significant, then describe the correlation in terms of it’s magnitude and direction.
  + Magnitude is (weak, moderate, strong-based on value -1 to 1 with values near 0 being weak, values near -1 or 1 being strong)
  + Direction based on sign, either negative or positive
* Report effect sizes for these correlations (also discussed on page 5 of the Course Study Guide)
* If the effect sizes are moderate to good, then I’ll accept your describing them as such as the strength rather than a limitation of the analysis (ie it counts). If the effect sizes are poor, then I’ll accept your describing them as such as a limitation (ie also counts).
* Report effect sizes for these correlations (
* If the effect sizes are moderate to good, then I’ll accept your describing them as such as the strength rather than a limitation of the analysis (ie it counts). If the effect sizes are poor, then I’ll accept your describing them as such as a limitation (ie also counts).
* The criterion here focuses on your application of correlation to your field of study.
* Describe an example of a research question that you would use correlation to answer in your field of study.
* Keep in mind the example should fit what is appropriate for the Pearson Correlation to assess
  + How many variables are required?
  + What type of variable must the dependent variable be?
  + Is it appropriate if you state your question as posing causation between the independent and dependent variable, or inappropriate?

**Use APA formatting**

* You have to use APA formatting for reporting the results of your analysis
* This is important because APA formatting includes relevant design information in your reporting so the reader has more complete understanding of the design and data
* You cannot escape this requirement so don’t resist it. Use examples or better yet, report your results as per the *APA Style Guide* version 7

**INSTRUCTIONS**

The grades SAV file is a sample SPSS data set. The data represent a teacher's recording of student demographics and performance on quizzes and a final exam across three sections of the course. Each section consists of 35 students (N = 105). There are 21 variables in gradessav



Step 1: The Data Analysis Plan

In Step 1:

* Name the four variables used in this analysis and whether they are categorical or continuous.
* State a research question, null hypothesis, and alternate hypothesis for one X-Y pair. For example, you could articulate a research question, null hypothesis, and alternate hypothesis for quiz1 (X) and final (Y).

Step 2: Testing Assumptions

Test for one of the assumptions of correlation—normality.

* Create a descriptive statistics table in SPSS to assess normality. This table should include the four variables named above.
* Paste the table in the DAA Template.
* Interpret the skewness and kurtosis values and how you determined whether the assumption of normality was met or violated.

Step 3: Results and Interpretation

In Step 3:

* Paste the SPSS output of the intercorrelation matrix for all specified variables:
  + First, report the lowest magnitude correlation in the intercorrelation matrix, including degrees of freedom, correlation coefficient, p value, and effect size. Interpret the effect size. Specify whether or not to reject the null hypothesis for this correlation.
  + Second, report the highest magnitude correlation in the intercorrelation matrix, including degrees of freedom, correlation coefficient, p value, and effect size. Interpret the effect size. Specify whether or not to reject the null hypothesis for this correlation.
  + Third, report the correlation between GPA and final, including degrees of freedom, correlation coefficient, p value, and effect size. Interpret the effect size. Analyze the correlation in terms of the null hypothesis.
* Interpret statistical results against the null hypothesis, and state whether it is accepted or rejected.

Step 4: Statistical Conclusions

In Step 4:

* Provide a brief summary of your analysis and the conclusions drawn.
* Analyze the limitations of the statistical test.
* Provide any possible alternate explanations for the findings and potential areas for future exploration.

Step 5: Application

In Step 5:

* Analyze how you might use correlations in your field of study.
* Name an independent variable and dependent variable that would work for such an analysis and why studying it may be important to the field or practice.