

Host

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Correlation Assumptions

Correlation Assumptions
Import data

Correlation Assumptions: Pairwise Case Count

>Warning # 2004. Command name: SUBTITLE

>The subtitle given exceeds 60 characters in length. The first 60 characters
>will be used.

Correlation Assumptions: Pairwise Case Count
The correlation and assumption checks use only complete G2-G

Frequencies

[CorrelationAssumptionsData] D:\DATA ANALYSIS\G Correlation Tests\Correlation Assumptions\SPSS_Output\sav\Correlation-Assumptions-pairwise-data.sav

Statistics

Complete paired case for G2 and G3 correlation assumptions

N	Valid	649
	Missing	0

Complete paired case for G2 and G3 correlation assumptions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete pair	649	100.0	100.0	100.0

Correlation Assumptions: Descriptive Statistics

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>Warning # 2004. Command name: SUBTITLE  
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Correlation Assumptions: Descriptive Statistics
 Check scale, spread, skewness, and kurtosis before Pearson c

Descriptives

Descriptive Statistics

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic
Second period grade / default X variable for correlation assumptions	649	0	19	11.57	2.914	-.360
Final grade / default Y variable for correlation assumptions	649	0	19	11.91	3.231	-.913
Valid N (listwise)	649					

Descriptive Statistics

	Skewness	Kurtosis	
	Std. Error	Statistic	Std. Error
Second period grade / default X variable for correlation assumptions	.096	1.662	.192
Final grade / default Y variable for correlation assumptions	.096	2.712	.192
Valid N (listwise)			

Correlation Assumptions: Normality and Univariate Outliers

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>will be used.
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Correlation Assumptions: Normality and Univariate Outliers
 Explore histograms, normal Q-Q plots, boxplots, and tests of

Explore

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Second period grade / default X variable for correlation assumptions	649	100.0%	0	0.0%	649	100.0%
Final grade / default Y variable for correlation assumptions	649	100.0%	0	0.0%	649	100.0%

Descriptives

		Statistic	Std. Error	
Second period grade / default X variable for correlation assumptions	Mean	11.57	.114	
	95% Confidence Interval for Mean	Lower Bound	11.35	
		Upper Bound	11.79	
	5% Trimmed Mean	11.60		
	Median	11.00		
	Variance	8.489		
	Std. Deviation	2.914		
	Minimum	0		
	Maximum	19		
	Range	19		
	Interquartile Range	3		
	Skewness	-.360	.096	
	Kurtosis	1.662	.192	
Final grade / default Y variable for correlation assumptions	Mean	11.91	.127	
	95% Confidence Interval for Mean	Lower Bound	11.66	
		Upper Bound	12.16	
	5% Trimmed Mean	12.06		
	Median	12.00		
	Variance	10.437		
	Std. Deviation	3.231		
Minimum	0			

Correlation Assumptions: Normality and Univariate Outliers
 Explore histograms, normal Q-Q plots, boxplots, and tests of

Descriptives

	Statistic	Std. Error
Maximum	19	
Range	19	
Interquartile Range	4	
Skewness	-.913	.096
Kurtosis	2.712	.192

Extreme Values

		Case Number	Value
Second period grade / default X variable for correlation assumptions	Highest	1	339
		2	197
		3	241
		4	333
		5	338
	Lowest	1	611
		2	606
		3	604
		4	598
		5	568
Final grade / default Y variable for correlation assumptions	Highest	1	339
		2	637
		3	114
		4	182
		5	186
	Lowest	1	641
		2	640
		3	638
		4	627
		5	611

a. Only a partial list of cases with the value 18 are shown in the table of upper extremes.

b.

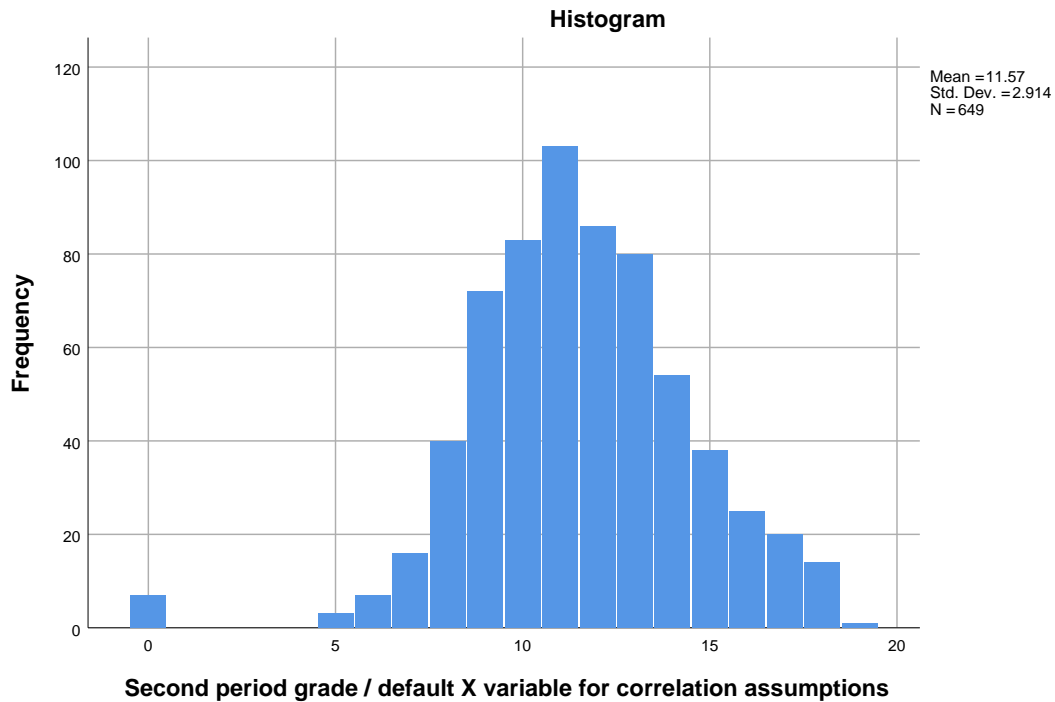
Correlation Assumptions: Normality and Univariate Outliers
 Explore histograms, normal Q-Q plots, boxplots, and tests of

Tests of Normality

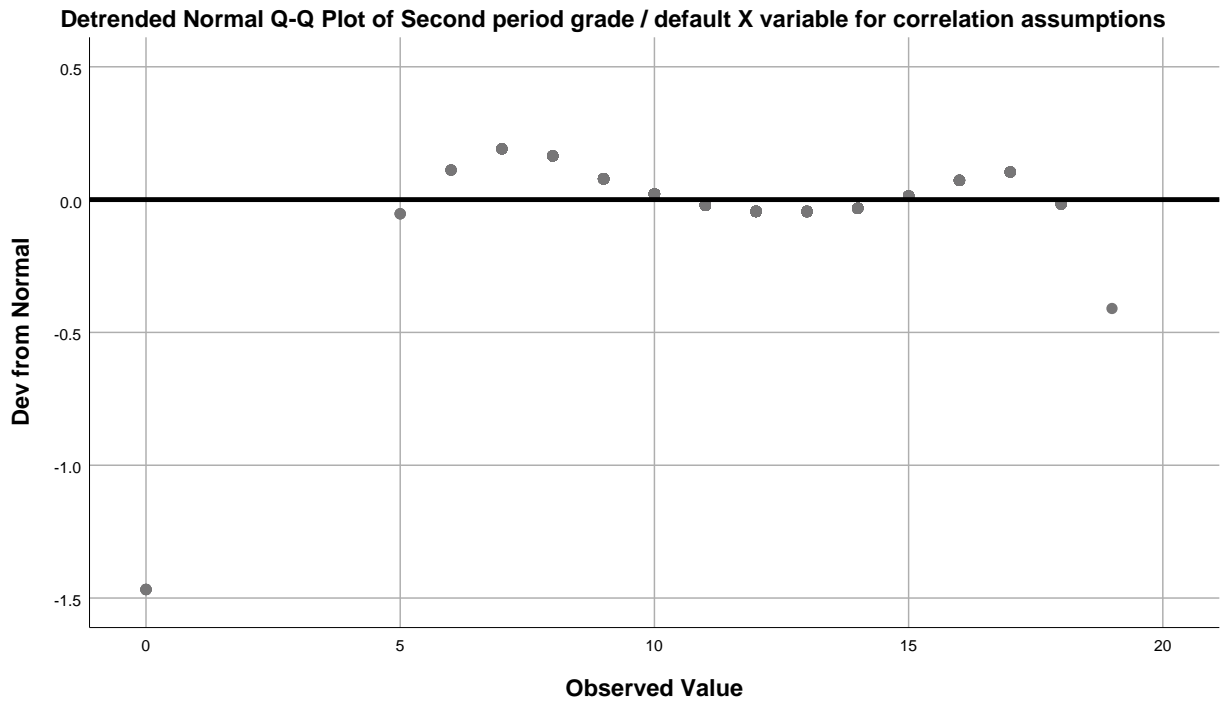
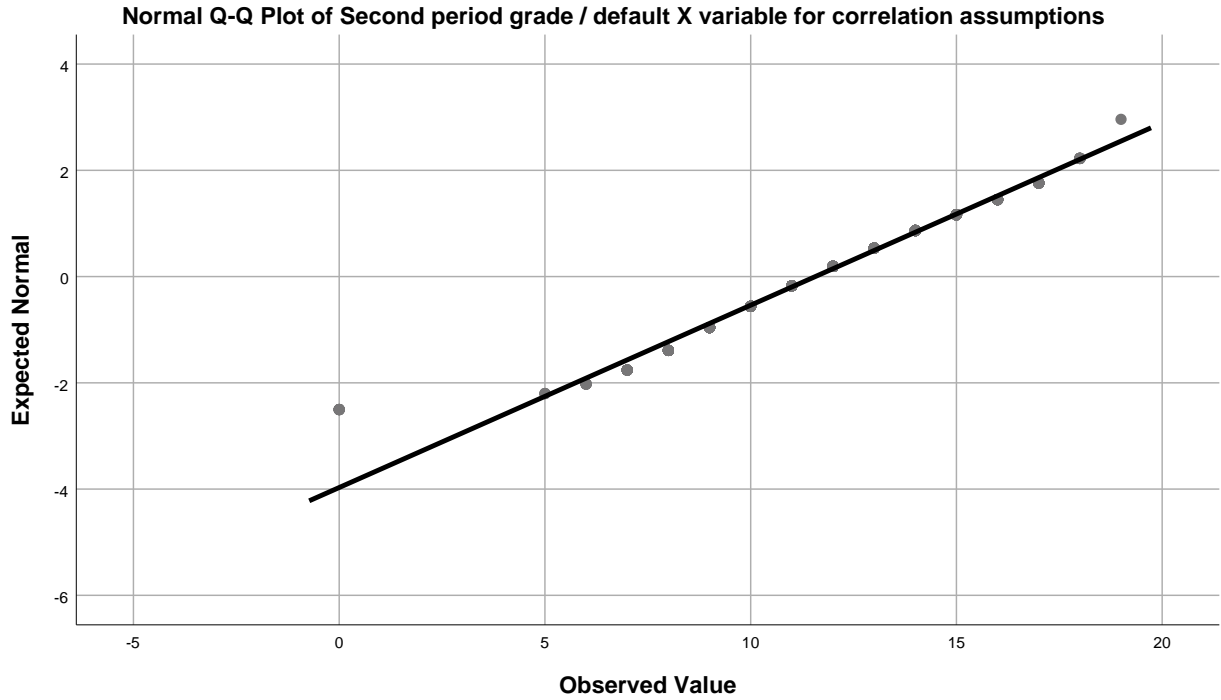
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Second period grade / default X variable for correlation assumptions	.088	649	.000	.962	649	.000
Final grade / default Y variable for correlation assumptions	.124	649	.000	.926	649	.000

a. Lilliefors Significance Correction

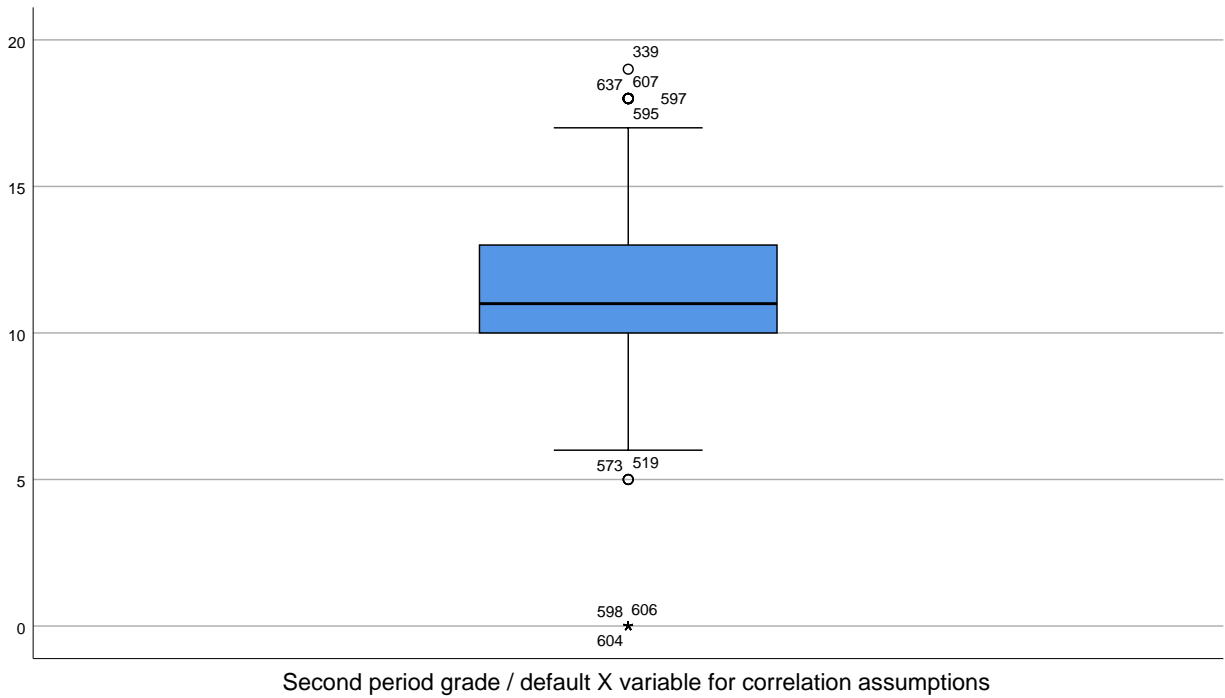
Second period grade / default X variable for correlation assumptions



Correlation Assumptions: Normality and Univariate Outliers
Explore histograms, normal Q-Q plots, boxplots, and tests of

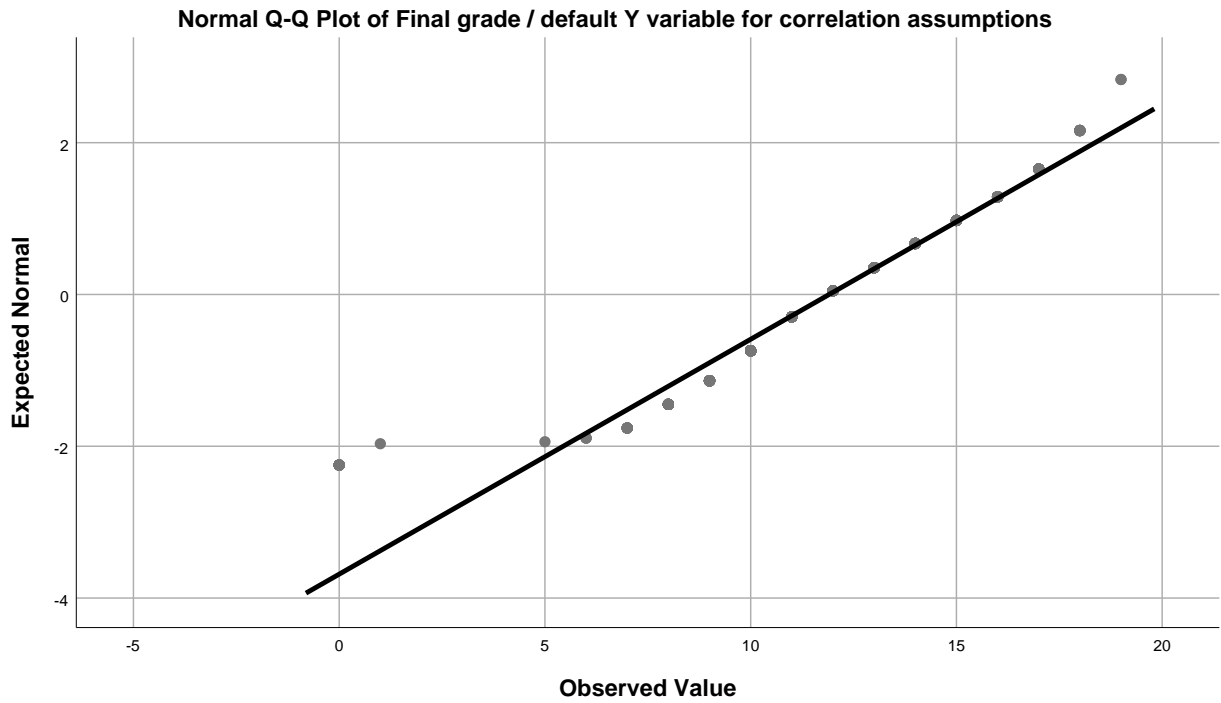
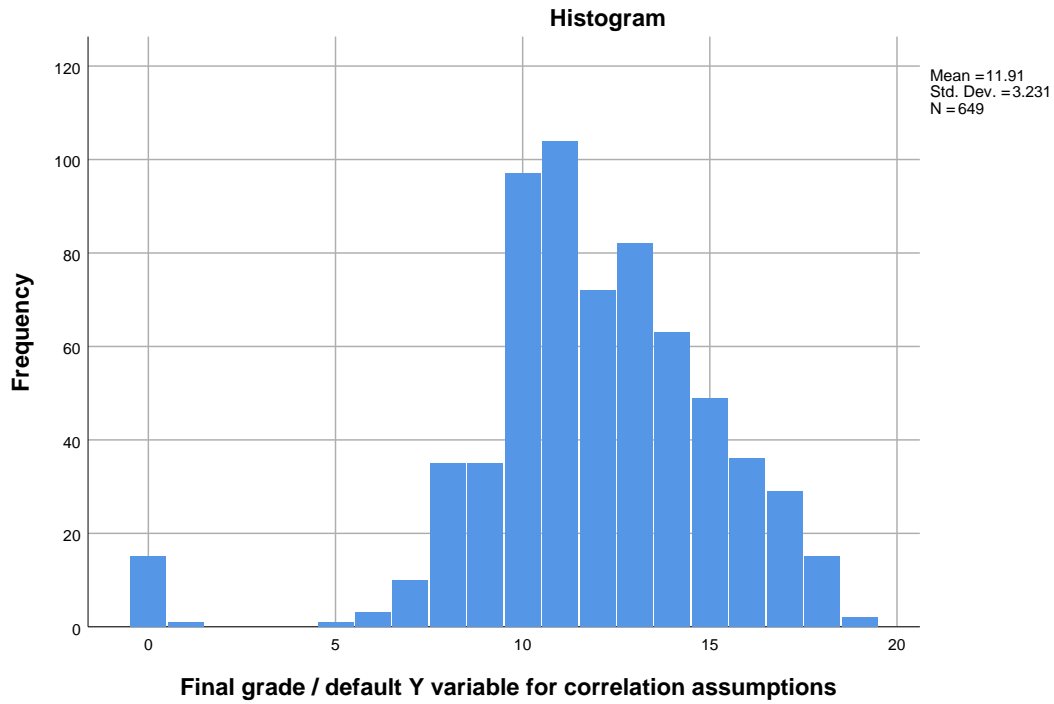


Correlation Assumptions: Normality and Univariate Outliers
Explore histograms, normal Q-Q plots, boxplots, and tests of

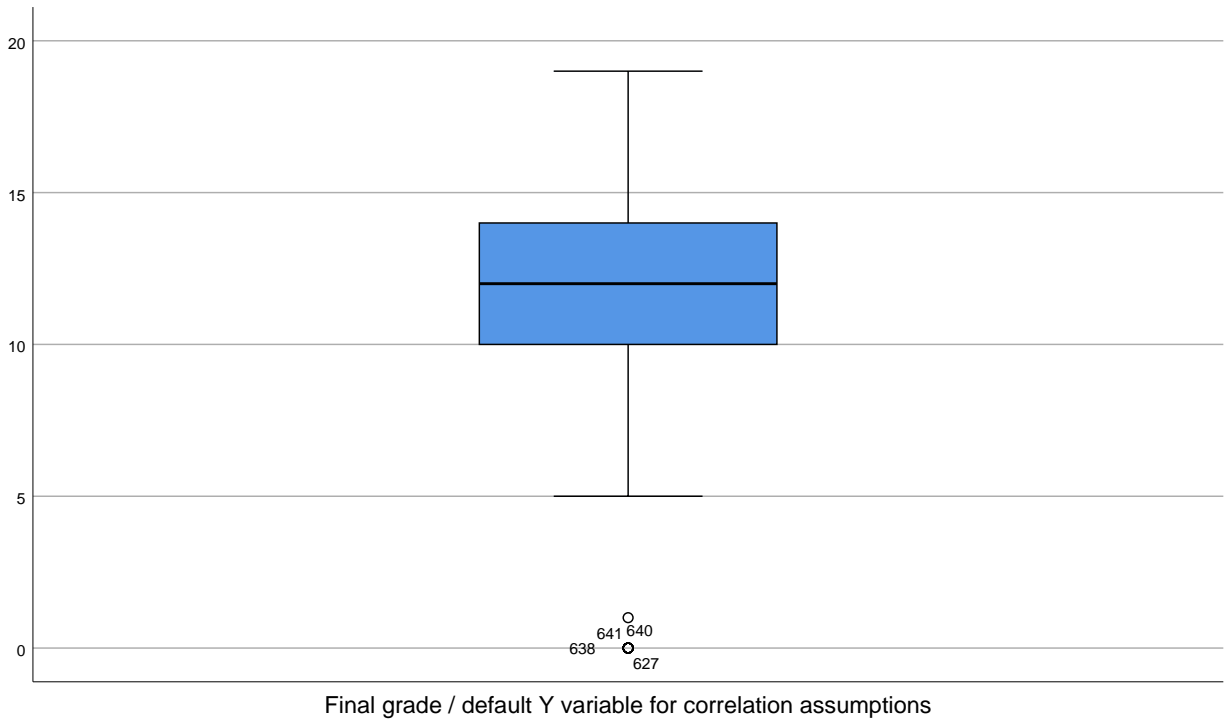
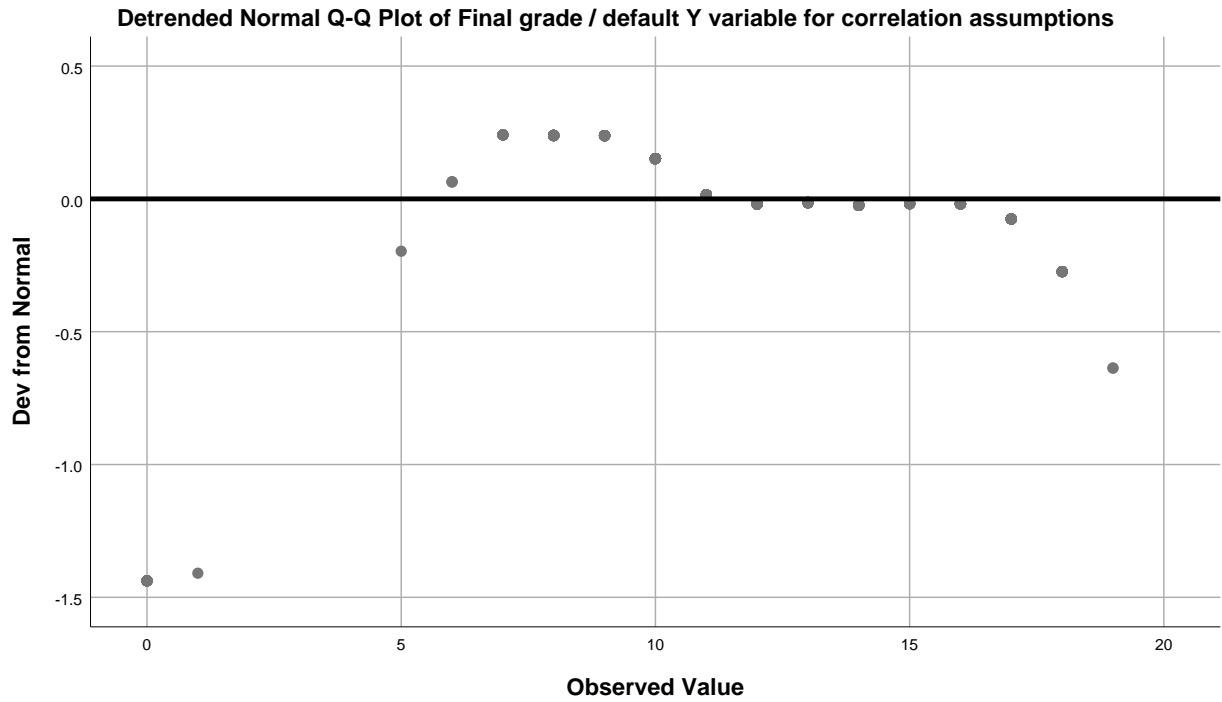


Final grade / default Y variable for correlation assumptions

Correlation Assumptions: Normality and Univariate Outliers
Explore histograms, normal Q-Q plots, boxplots, and tests of



Correlation Assumptions: Normality and Univariate Outliers
Explore histograms, normal Q-Q plots, boxplots, and tests of



Correlation Assumptions: Pearson Correlation

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>Warning # 2004. Command name: SUBTITLE  
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Correlation Assumptions: Pearson Correlation
 Pearson r is interpreted when the relationship is linear and

Correlations

Correlations

		Second period grade / default X variable for correlation assumptions	Final grade / default Y variable for correlation assumptions
Second period grade / default X variable for correlation assumptions	Pearson Correlation	1	.919
	Sig. (2-tailed)		.000
	N	649	649
Final grade / default Y variable for correlation assumptions	Pearson Correlation	.919	1
	Sig. (2-tailed)	.000	
	N	649	649

Correlation Assumptions: Spearman Rank Correlation

```
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Correlation Assumptions: Spearman Rank Correlation
 Spearman rho is a useful robustness check when normality or

Nonparametric Correlations

Correlations

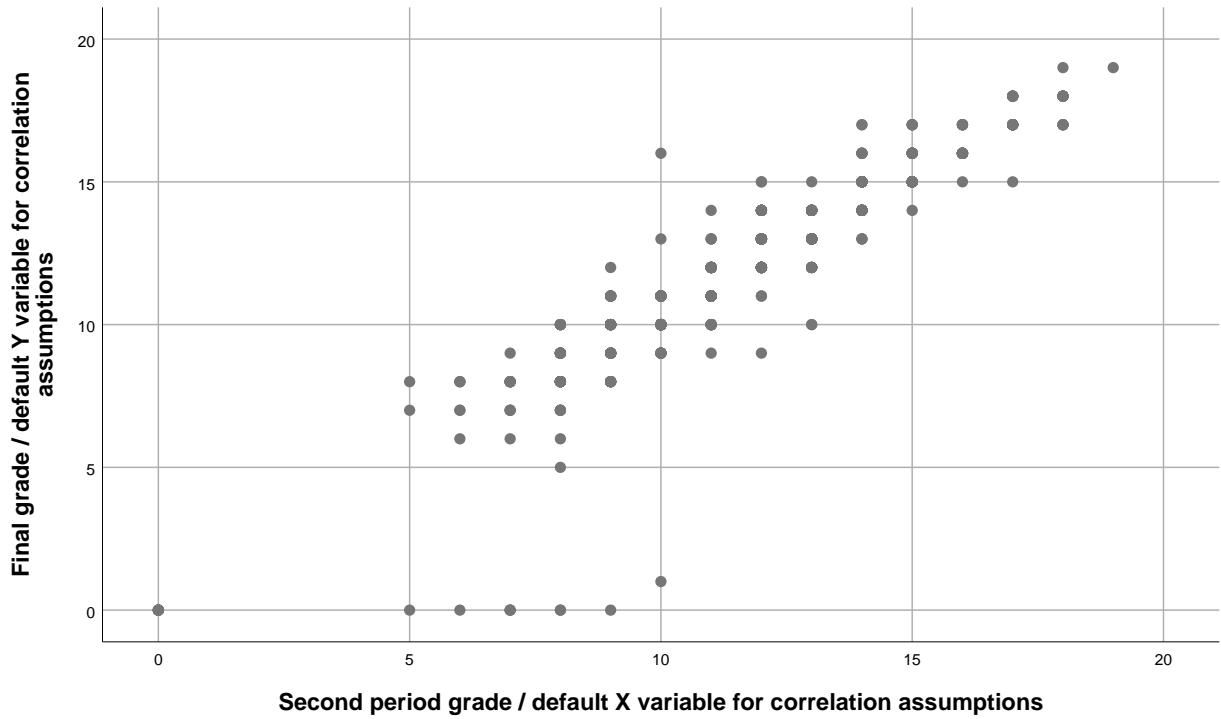
			Second period grade / default X variable for correlation assumptions	Final grade / default Y variable for correlation assumptions
Spearman's rho	Second period grade / default X variable for correlation assumptions	Correlation Coefficient	1.000	.944
		Sig. (2-tailed)	.	.000
		N	649	649
	Final grade / default Y variable for correlation assumptions	Correlation Coefficient	.944	1.000
		Sig. (2-tailed)	.000	.
		N	649	649

Correlation Assumptions: Scatterplot for Linearity

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>Warning # 2004. Command name: SUBTITLE  
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```

Correlation Assumptions: Scatterplot for Linearity
A roughly straight cloud supports Pearson correlation; a cur

Graph



```
>Warning # 2003. Command name: TITLE  
>The title given exceeds 60 characters in length. The first 60 characters will  
1  
>be used.
```

Correlation Assumptions: Regression Diagnostics for Linearit

```
>Warning # 2004.  Command name: SUBTITLE  
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```

Correlation Assumptions: Regression Diagnostics for Linearit
 Regression diagnostics are used here only as assumption chec

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Second period grade / default X variable for correlation assumptions ^b	.	Enter

a. Dependent Variable: Final grade / default Y variable for correlation assumptions

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919 ^a	.844	.843	1.278

a. Predictors: (Constant), Second period grade / default X variable for correlation assumptions

b. Dependent Variable: Final grade / default Y variable for correlation assumptions

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5706.374	1	5706.374	3493.282	.000 ^b
	Residual	1056.893	647	1.634		
	Total	6763.267	648			

a. Dependent Variable: Final grade / default Y variable for correlation assumptions

b. Predictors: (Constant), Second period grade / default X variable for correlation assumptions

Correlation Assumptions: Regression Diagnostics for Linearit
 Regression diagnostics are used here only as assumption chec

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.122	.206		.593	.553
	Second period grade / default X variable for correlation assumptions	1.018	.017	.919	59.104	.000

Coefficients^a

Model		95.0% Confidence Interval for B		Correlations		
		Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	-.282	.526			
	Second period grade / default X variable for correlation assumptions	.985	1.052	.919	.919	.919

a. Dependent Variable: Final grade / default Y variable for correlation assumptions

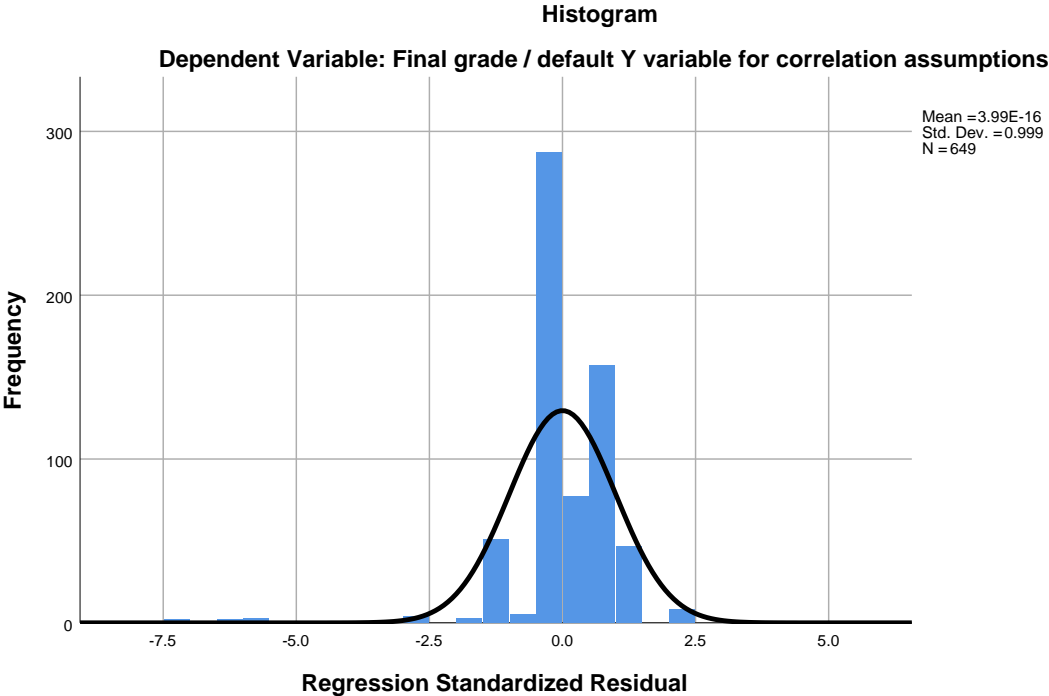
Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.12	19.47	11.91	2.968	649
Std. Predicted Value	-3.971	2.550	.000	1.000	649
Standard Error of Predicted Value	.051	.206	.067	.023	649
Adjusted Predicted Value	.13	19.48	11.91	2.968	649
Residual	-9.307	5.693	.000	1.277	649
Std. Residual	-7.282	4.454	.000	.999	649
Stud. Residual	-7.289	4.459	.000	1.001	649
Deleted Residual	-9.325	5.704	.000	1.282	649
Stud. Deleted Residual	-7.602	4.525	-.003	1.018	649
Mahal. Distance	.022	15.769	.998	1.907	649
Cook's Distance	.000	.087	.002	.009	649
Centered Leverage Value	.000	.024	.002	.003	649

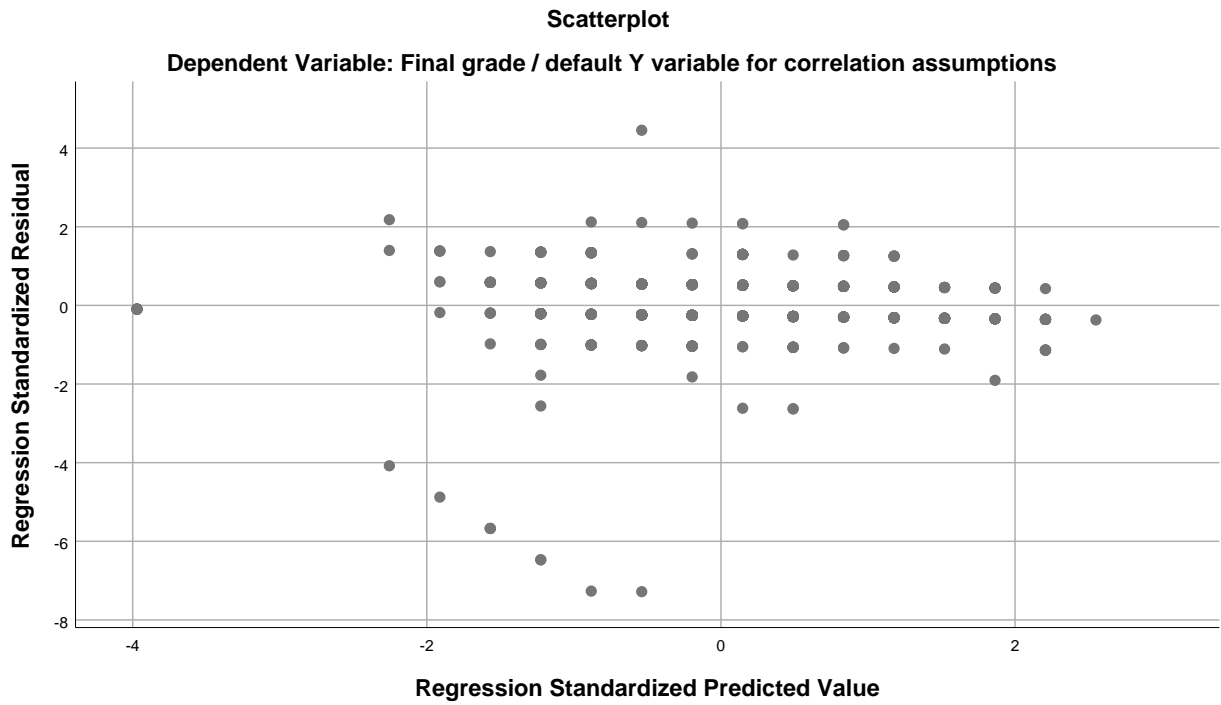
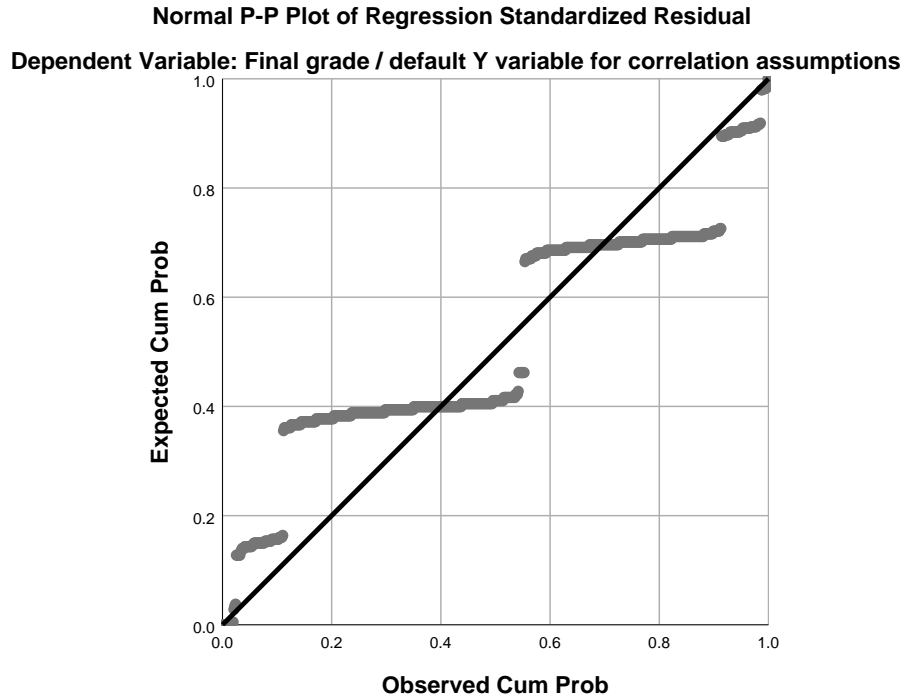
a. Dependent Variable: Final grade / default Y variable for correlation assumptions

Correlation Assumptions: Regression Diagnostics for Linearit
Regression diagnostics are used here only as assumption chec

Charts



Correlation Assumptions: Regression Diagnostics for Linearit
Regression diagnostics are used here only as assumption chec



>Warning # 2003. Command name: TITLE

Correlation Assumptions: Regression Diagnostics for Linearit
Regression diagnostics are used here only as assumption chec

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>be used.

Correlation Assumptions: Residual Spread and Influence Summa

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Correlation Assumptions: Residual Spread and Influence Summa
 Review standardized residuals, leverage, Cook distance, and

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Unstandardized Predicted Value	649	.12197	19.47328	11.9060092	2.96751284
Unstandardized Residual	649	-9.30687	5.69313	.0000000	1.27710896
Standardized Predicted Value	649	-3.97102	2.55004	.0000000	1.00000000
Standardized Residual	649	-7.28183	4.45439	.0000000	.99922810
Absolute standardized residual from G3 on G2	649	.10	7.28	.6322	.77340
Cook's Distance	649	.00005	.08683	.0018259	.00946142
Centered Leverage Value	649	.00003	.02433	.0015408	.00294217
Mahalanobis Distance	649	.02177	15.76897	.9984592	1.90652678
Cook distance screening threshold: 4 divided by complete-pair N	649	.01	.01	.0062	.00000
Valid N (listwise)	649				

Frequencies

Statistics

N		Absolute standardized residual greater than 3	Cook distance greater than 4/N	Mahalanobis distance above chi-square .975 critical value with df=2
Valid	649	649	649	649
Missing	0	0	0	0

Frequency Table

Correlation Assumptions: Residual Spread and Influence Summa
 Review standardized residuals, leverage, Cook distance, and

Absolute standardized residual greater than 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	639	98.5	98.5	98.5
	Yes	10	1.5	1.5	100.0
	Total	649	100.0	100.0	

Cook distance greater than 4/N

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	629	96.9	96.9	96.9
	Yes	20	3.1	3.1	100.0
	Total	649	100.0	100.0	

Mahalanobis distance above chi-square .975 critical value with df=2

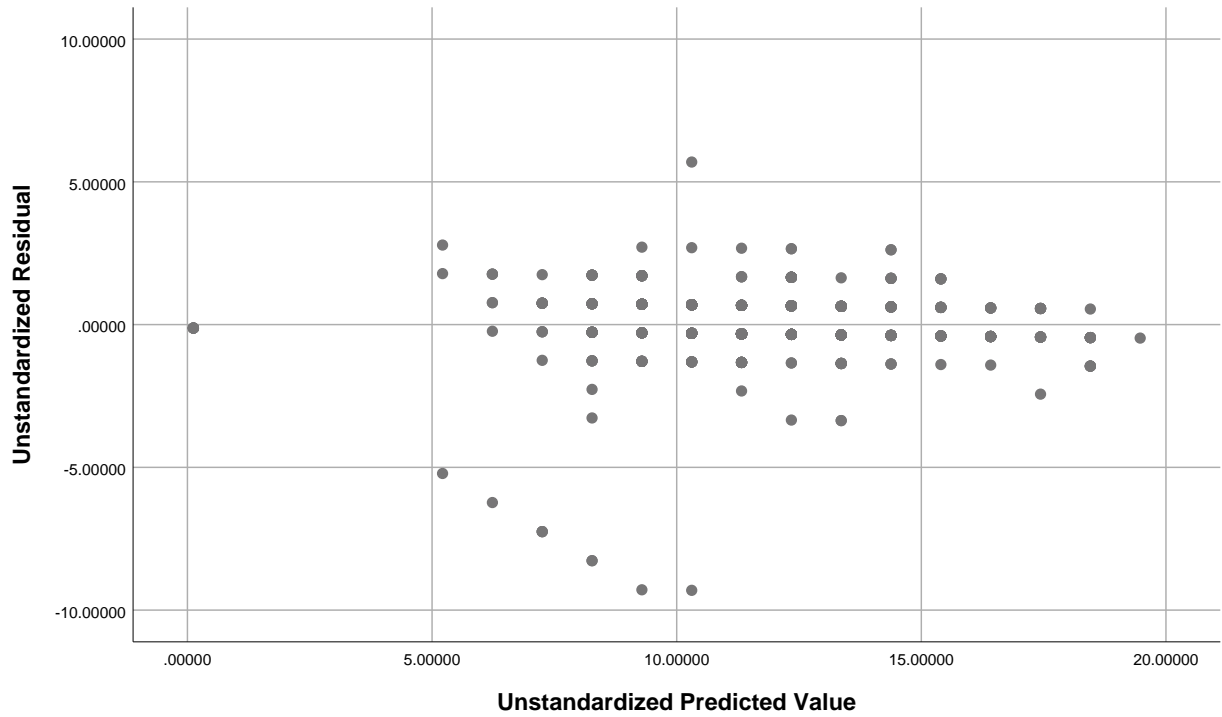
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	642	98.9	98.9	98.9
	Yes	7	1.1	1.1	100.0
	Total	649	100.0	100.0	

Correlation Assumptions: Residuals Versus Fitted Values

```
>Warning # 2004.  Command name: SUBTITLE  
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```

Correlation Assumptions: Residuals Versus Fitted Values
Random spread around zero supports constant variance; funnel

Graph



Correlation Assumptions: Bivariate Influence Plot

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Correlation Assumptions: Broader Numeric Correlation Context

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Correlation Assumptions: Broader Numeric Correlation Context
 This matrix helps compare the selected G2-G3 relationship wi

Correlations

Correlations

		First period grade	Second period grade / default X variable for correlation assumptions	Final grade / default Y variable for correlation assumptions
First period grade	Pearson Correlation	1	.865	.826
	Sig. (2-tailed)		.000	.000
	N	649	649	649
Second period grade / default X variable for correlation assumptions	Pearson Correlation	.865	1	.919
	Sig. (2-tailed)	.000		.000
	N	649	649	649
Final grade / default Y variable for correlation assumptions	Pearson Correlation	.826	.919	1
	Sig. (2-tailed)	.000	.000	
	N	649	649	649
age	Pearson Correlation	-.174	-.107	-.107
	Sig. (2-tailed)	.000	.006	.007
	N	649	649	649
School absences	Pearson Correlation	-.147	-.125	-.091
	Sig. (2-tailed)	.000	.001	.020
	N	649	649	649
Weekly study time group	Pearson Correlation	.261	.240	.250
	Sig. (2-tailed)	.000	.000	.000
	N	649	649	649
failures	Pearson Correlation	-.384	-.386	-.393
	Sig. (2-tailed)	.000	.000	.000
	N	649	649	649

Correlation Assumptions: Broader Numeric Correlation Context
 This matrix helps compare the selected G2-G3 relationship wi

Correlations

		age	School absences	Weekly study time group	failures
First period grade	Pearson Correlation	-.174	-.147	.261	-.384
	Sig. (2-tailed)	.000	.000	.000	.000
	N	649	649	649	649
Second period grade / default X variable for correlation assumptions	Pearson Correlation	-.107	-.125	.240	-.386
	Sig. (2-tailed)	.006	.001	.000	.000
	N	649	649	649	649
Final grade / default Y variable for correlation assumptions	Pearson Correlation	-.107	-.091	.250	-.393
	Sig. (2-tailed)	.007	.020	.000	.000
	N	649	649	649	649
age	Pearson Correlation	1	.150	-.008	.320
	Sig. (2-tailed)		.000	.831	.000
	N	649	649	649	649
School absences	Pearson Correlation	.150	1	-.118	.123
	Sig. (2-tailed)	.000		.003	.002
	N	649	649	649	649
Weekly study time group	Pearson Correlation	-.008	-.118	1	-.147
	Sig. (2-tailed)	.831	.003		.000
	N	649	649	649	649
failures	Pearson Correlation	.320	.123	-.147	1
	Sig. (2-tailed)	.000	.002	.000	
	N	649	649	649	649