

## Normal Distribution Analysis for G3 Final Grade

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>Warning # 2004.  Command name: SUBTITLE  
>The subtitle given exceeds 60 characters in length.  The first 60 characters  
>will be used.
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Normal Distribution Analysis for G3 Final Grade  
 Normal curve, Q-Q plot, K-S normality test, z-scores, and 68

## Frequencies

[ StudentData ]

### Statistics

		Final grade	Standardized z-score for G3
N	Valid	649	649
	Missing	0	0
Mean		11.91	.0000
Median		12.00	.0291
Mode		11	-.28
Std. Deviation		3.231	1.00000
Variance		10.437	1.000
Skewness		-.913	-.913
Std. Error of Skewness		.096	.096
Kurtosis		2.712	2.712
Std. Error of Kurtosis		.192	.192
Range		19	5.88
Minimum		0	-3.69
Maximum		19	2.20

## Frequency Table

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**Final grade**

		Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	0	15	2.3	2.3	2.3	
	1	1	.2	.2	2.5	
	5	1	.2	.2	2.6	
	6	3	.5	.5	3.1	
	7	10	1.5	1.5	4.6	
	8	35	5.4	5.4	10.0	
	9	35	5.4	5.4	15.4	
	10	97	14.9	14.9	30.4	
	11	104	16.0	16.0	46.4	
	12	72	11.1	11.1	57.5	
	13	82	12.6	12.6	70.1	
	14	63	9.7	9.7	79.8	
	15	49	7.6	7.6	87.4	
	16	36	5.5	5.5	92.9	
	17	29	4.5	4.5	97.4	
	18	15	2.3	2.3	99.7	
	19	2	.3	.3	100.0	
		Total	649	100.0	100.0	

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**Standardized z-score for G3**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-3.69	15	2.3	2.3	2.3
	-3.38	1	.2	.2	2.5
	-2.14	1	.2	.2	2.6
	-1.83	3	.5	.5	3.1
	-1.52	10	1.5	1.5	4.6
	-1.21	35	5.4	5.4	10.0
	-.90	35	5.4	5.4	15.4
	-.59	97	14.9	14.9	30.4
	-.28	104	16.0	16.0	46.4
	.03	72	11.1	11.1	57.5
	.34	82	12.6	12.6	70.1
	.65	63	9.7	9.7	79.8
	.96	49	7.6	7.6	87.4
	1.27	36	5.5	5.5	92.9
	1.58	29	4.5	4.5	97.4
	1.89	15	2.3	2.3	99.7
	2.20	2	.3	.3	100.0
	Total		649	100.0	100.0

**Explore**

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Final grade	649	100.0%	0	0.0%	649	100.0%

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**Descriptives**

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

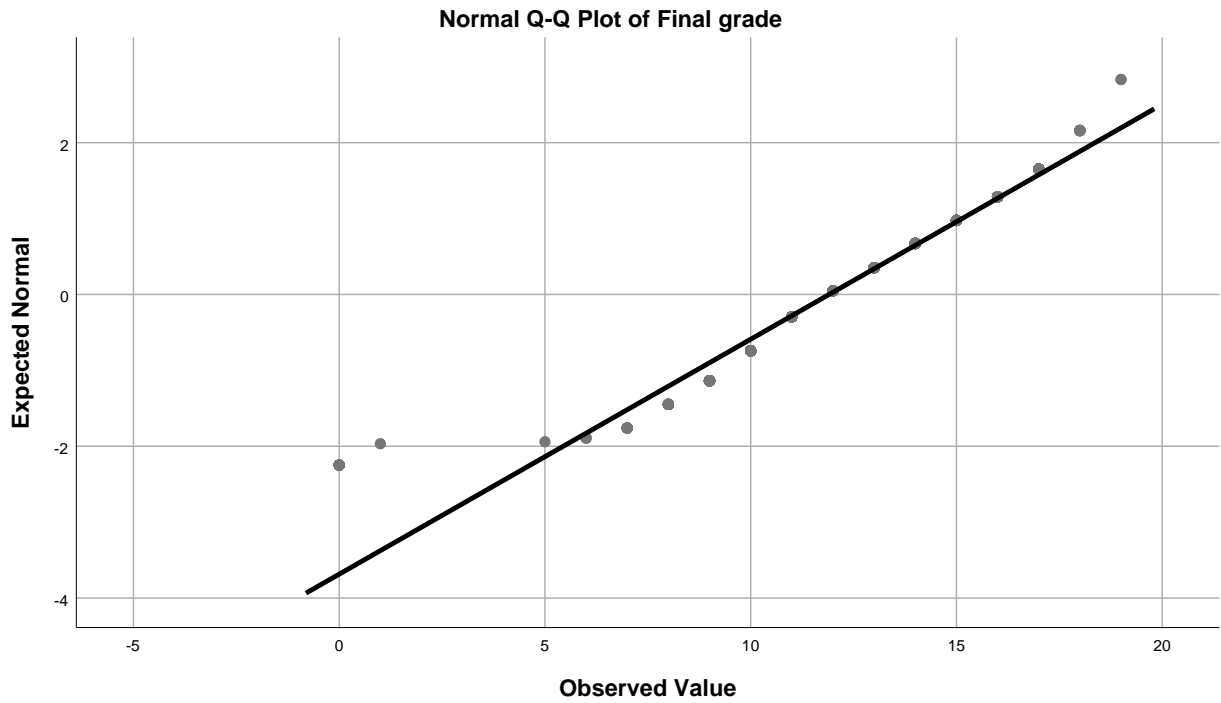
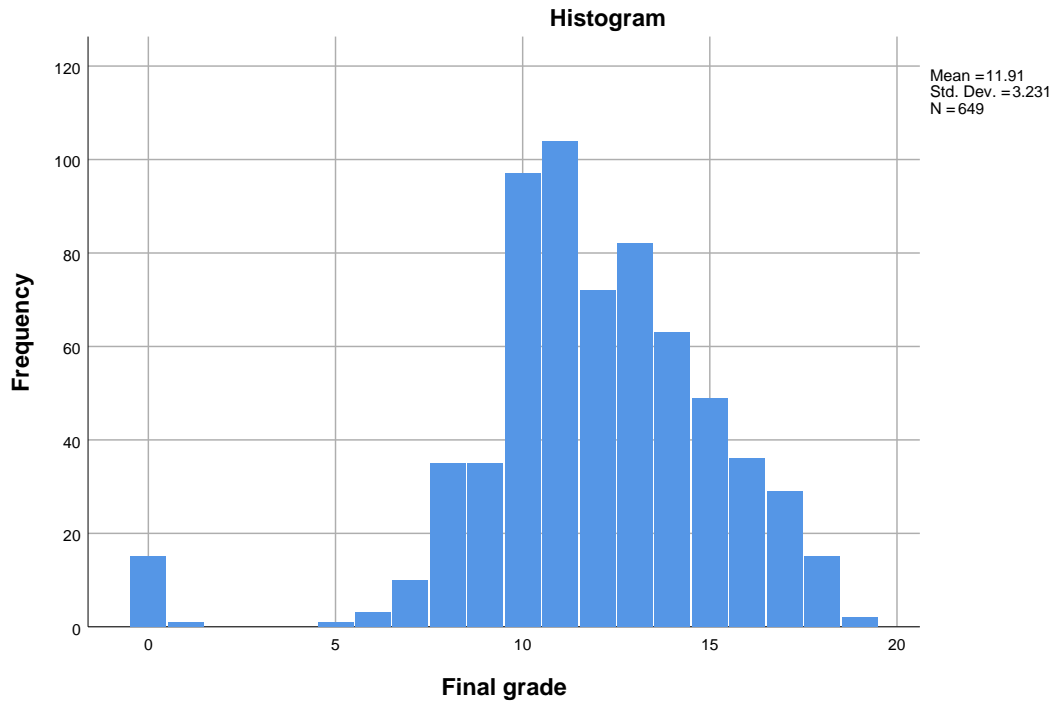
**Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Final grade	.124	649	.000	.926	649	.000

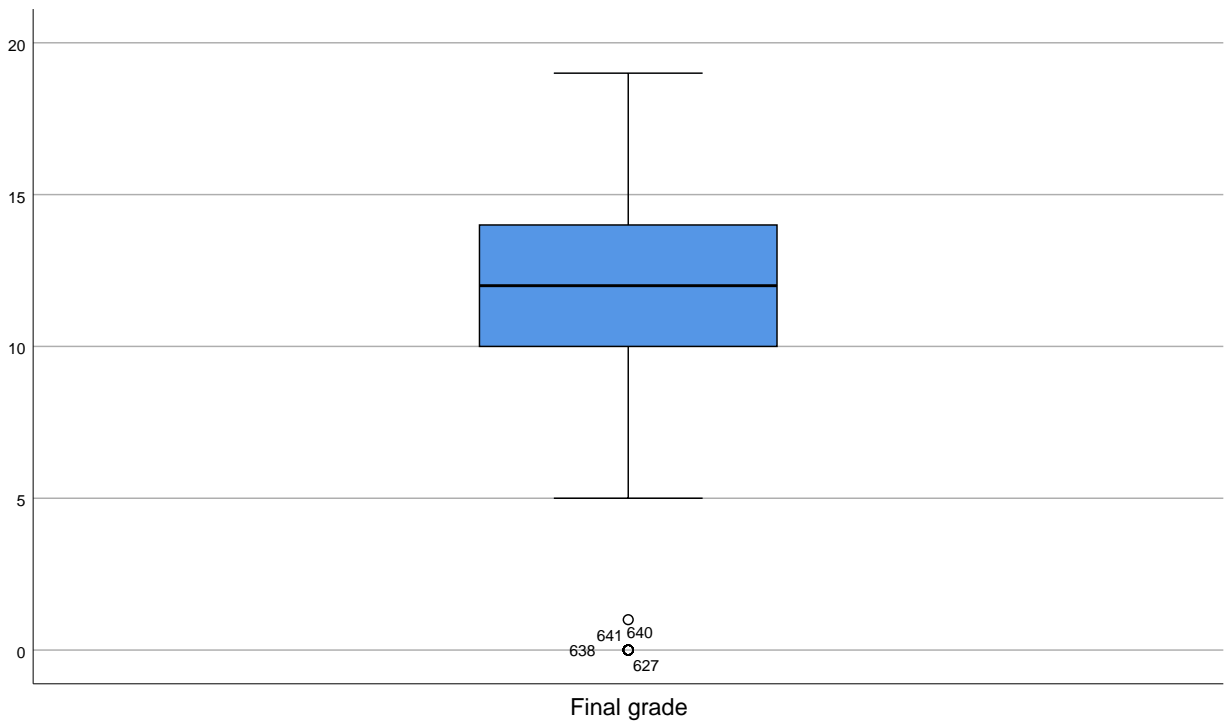
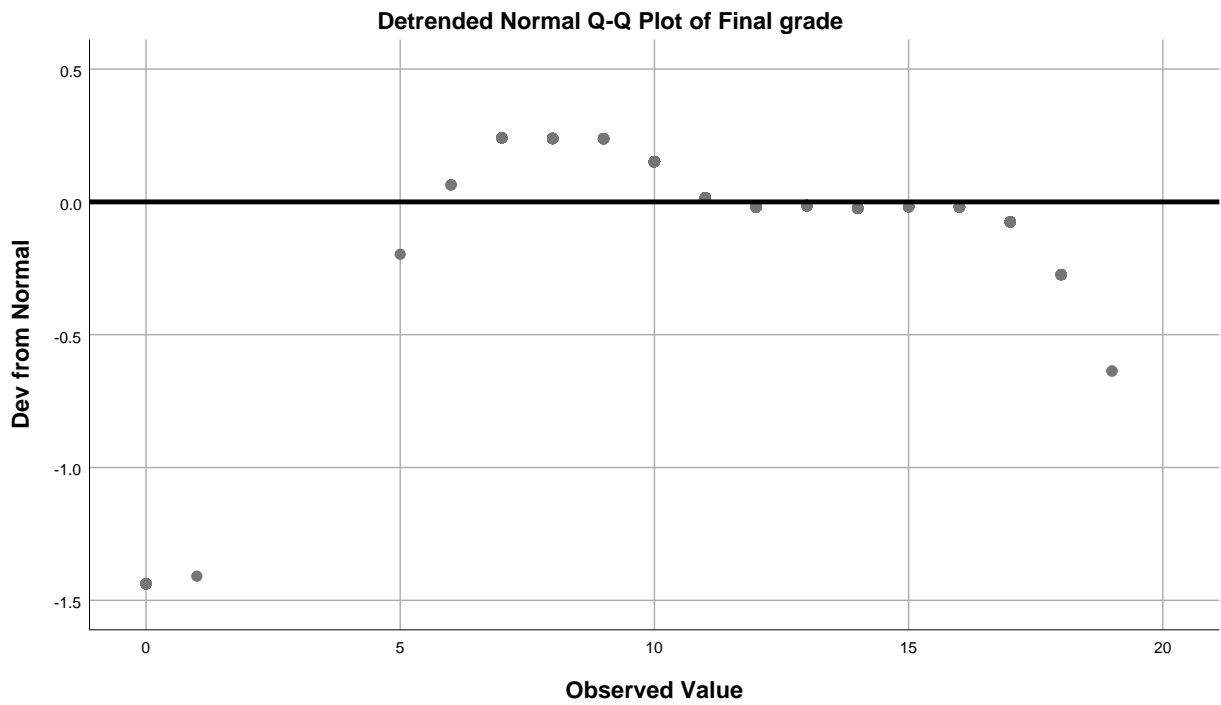
a. Lilliefors Significance Correction

**Final grade**

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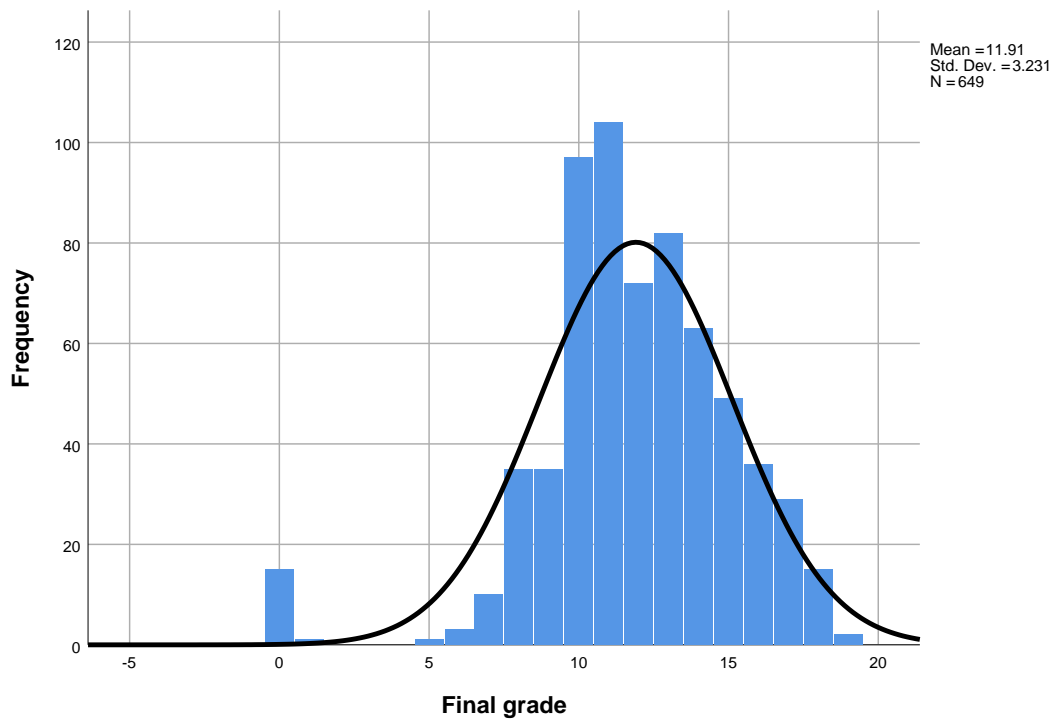
## NPar Tests

### One-Sample Kolmogorov-Smirnov Test

		Final grade
N		649
Normal Parameters <sup>a,b</sup>	Mean	11.91
	Std. Deviation	3.231
Most Extreme Differences	Absolute	.124
	Positive	.074
	Negative	-.124
Test Statistic		.124
Asymp. Sig. (2-tailed)		.000 <sup>c</sup>

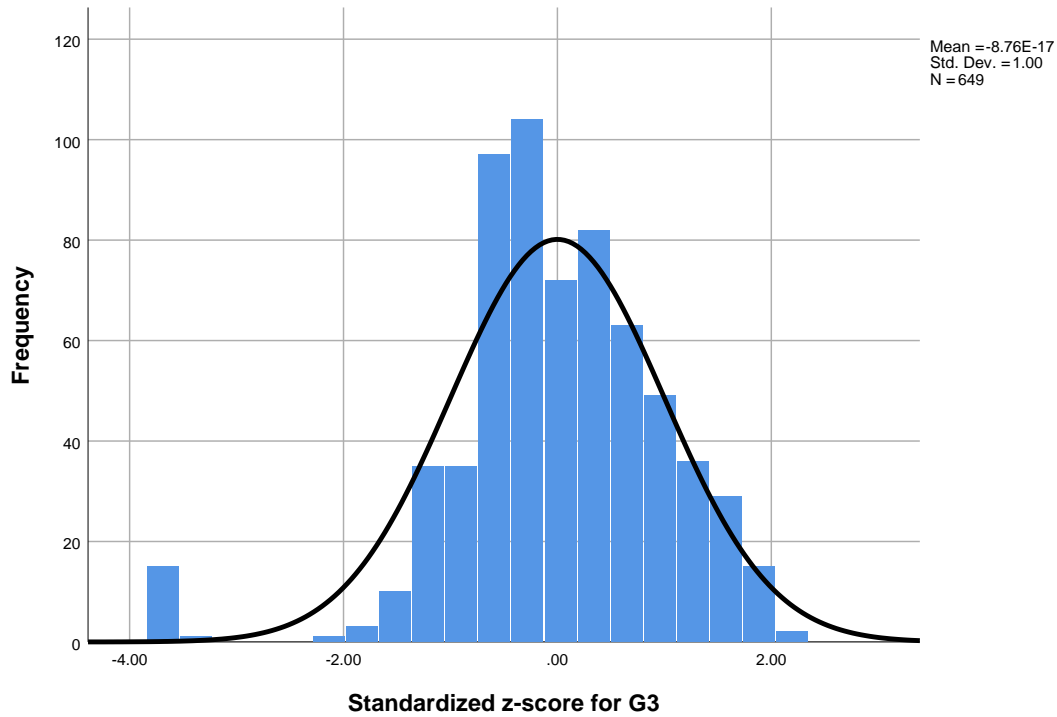
- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.

## Graph



Normal Distribution Analysis for G3 Final Grade  
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**Graph**



**Frequencies**

**Statistics**

		within_1sd	within_2sd	within_3sd
N	Valid	649	649	649
	Missing	0	0	0

**Frequency Table**

**within\_1sd**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	147	22.7	22.7	22.7
	1.00	502	77.3	77.3	100.0
Total		649	100.0	100.0	

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**within\_2sd**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	19	2.9	2.9	2.9
	1.00	630	97.1	97.1	100.0
	Total	649	100.0	100.0	

**within\_3sd**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	16	2.5	2.5	2.5
	1.00	633	97.5	97.5	100.0
	Total	649	100.0	100.0	

**List**

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n_G3	mean_G3	sd_G3	lower_1sd	upper_1sd	lower_2sd	upper_2sd	lower_3sd	upper_3sd
649	11.91	3.23	8.68	15.14	5.44	18.37	2.21	21.60

Number of cases read: 1      Number of cases listed: 1

Data written to D:\DATA ANALYSIS\...\Normal Distribution\SPSS\_Output\clean\_data\spss\_ready\_data.csv.

46 variables and 649 cases written.

Variable:	Type:	Width:	Dec:
school	String	2	
sex	String	1	
age	Number	2	0
address	String	1	
famsize	String	3	
Pstatus	String	1	
Medu	Number	1	0
Fedu	Number	1	0
Mjob	String	12	
Fjob	String	12	
reason	String	12	
guardian	String	12	
traveltime	Number	1	0
studytime	Number	1	0
failures	Number	1	0
schoolsup	String	3	
famsup	String	3	
paid	String	3	
activities	String	3	
nursery	String	3	
higher	String	3	
internet	String	3	
romantic	String	3	
famrel	Number	1	0

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Variable: freetime	Type: Number	Width: 1	Dec: 0
Variable: goout	Type: Number	Width: 1	Dec: 0
Variable: Dalc	Type: Number	Width: 1	Dec: 0
Variable: Walc	Type: Number	Width: 1	Dec: 0
Variable: health	Type: Number	Width: 1	Dec: 0
Variable: absences	Type: Number	Width: 3	Dec: 0
Variable: G1	Type: Number	Width: 2	Dec: 0
Variable: G2	Type: Number	Width: 2	Dec: 0
Variable: G3	Type: Number	Width: 2	Dec: 0
Variable: n_G3	Type: Number	Width: 7	Dec: 0
Variable: mean_G3	Type: Number	Width: 8	Dec: 2
Variable: sd_G3	Type: Number	Width: 8	Dec: 2
Variable: ZG3	Type: Number	Width: 8	Dec: 2
Variable: lower_1sd	Type: Number	Width: 8	Dec: 2
Variable: upper_1sd	Type: Number	Width: 8	Dec: 2
Variable: lower_2sd	Type: Number	Width: 8	Dec: 2
Variable: upper_2sd	Type: Number	Width: 8	Dec: 2
Variable: lower_3sd	Type: Number	Width: 8	Dec: 2
Variable: upper_3sd	Type: Number	Width: 8	Dec: 2
Variable: within_1sd	Type: Number	Width: 8	Dec: 2
Variable: within_2sd	Type: Number	Width: 8	Dec: 2
Variable: within_3sd	Type: Number	Width: 8	Dec: 2