Host

Notes

Output Created		23-JUN-2026 09:31:48
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output""].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.13

Host

Notes

Output Created		23-JUN-2026 09:31:48
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\png" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\png'"].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

Host

Notes

Output Created		23-JUN-2026 09:31:48
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\tables" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\tables'"].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

Host

Notes

Output Created		23-JUN-2026 09:31:48
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\pdf " mkdir "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\pdf ""].
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.12

Host

Notes

Output Created		23-JUN-2026 09:31:48
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\spv" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\spv""].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.12

Host

Notes

Output Created		23-JUN-2026 09:31:48
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\sav" mkdir "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\sav""].
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.10

Host

Notes

Output Created		23-JUN-2026 09:31:49
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		HOST COMMAND=['cmd /c if exist "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\png*.png" del /q "D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\png*.png"'].
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

```
>Warning # 2004.  Command name: SUBTITLE
>The subtitle given exceeds 60 characters in length.  The first 60 characters
>will be used.
```

Means

Notes

Output Created		23-JUN-2026 09:31:49
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\sav\split_plot_anova_spss_ready_data.sav
	Active Dataset	SplitPlotANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	For each dependent variable in a table, user-defined missing values for the dependent and all grouping variables are treated as missing.
	Cases Used	Cases used for each table have no missing values in any independent variable, and not all dependent variables have missing values.
Syntax		MEANS TABLES=G1 G2 G3 BY studytime /CELLS=COUNT MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

```
[SplitPlotANOVAData] D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\sav\split_plot_anova_spss_ready_data.sav
```

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
G1 * studytime	649	100.0%	0	0.0%	649	100.0%
G2 * studytime	649	100.0%	0	0.0%	649	100.0%
G3 * studytime	649	100.0%	0	0.0%	649	100.0%

Report

studytime		G1	G2	G3
1	N	212	212	212
	Mean	10.5047	10.7028	10.8443
	Std. Deviation	2.56572	2.69656	3.21862
	Minimum	4.00	.00	.00
	Maximum	18.00	18.00	18.00
2	N	305	305	305
	Mean	11.5377	11.6623	12.0918
	Std. Deviation	2.73730	2.98252	3.24313
	Minimum	.00	.00	.00
	Maximum	18.00	18.00	19.00
3	N	97	97	97
	Mean	12.4227	12.7938	13.2268
	Std. Deviation	2.45728	2.46195	2.50210
	Minimum	7.00	7.00	8.00
	Maximum	19.00	18.00	18.00
4	N	35	35	35
	Mean	12.7714	12.6286	13.0571
	Std. Deviation	2.94145	3.13506	3.03841
	Minimum	5.00	6.00	6.00
	Maximum	18.00	19.00	19.00
Total	N	649	649	649
	Mean	11.3991	11.5701	11.9060

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Report

studytime		G1	G2	G3
	Std. Deviation	2.74527	2.91364	3.23066
	Minimum	.00	.00	.00
	Maximum	19.00	19.00	19.00

General Linear Model

Notes

Output Created		23-JUN-2026 09:31:49
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\sav \split_plot_anova_spss_ready_data.sav
	Active Dataset	SplitPlotANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		GLM G1 G2 G3 BY studytime /WSFACTOR=Time 3 Polynomial /MEASURE=Grade /METHOD=SSTYPE(3) /PLOT=PROFILE (Time*studytime) /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY /CRITERIA=ALPHA(.05) /WSDESIGN=Time /DESIGN=studytime.

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Notes

Resources	Processor Time	00:00:04.88
	Elapsed Time	00:00:03.64

Within-Subjects Factors

Measure: Grade

Time	Dependent Variable
1	G1
2	G2
3	G3

Between-Subjects Factors

		Value Label	N
studytime	1	Studytime 1	212
	2	Studytime 2	305
	3	Studytime 3	97
	4	Studytime 4	35

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Descriptive Statistics

	studytime	Mean	Std. Deviation	N
G1	1	10.5047	2.56572	212
	2	11.5377	2.73730	305
	3	12.4227	2.45728	97
	4	12.7714	2.94145	35
	Total	11.3991	2.74527	649
G2	1	10.7028	2.69656	212
	2	11.6623	2.98252	305
	3	12.7938	2.46195	97
	4	12.6286	3.13506	35
	Total	11.5701	2.91364	649
G3	1	10.8443	3.21862	212
	2	12.0918	3.24313	305
	3	13.2268	2.50210	97
	4	13.0571	3.03841	35
	Total	11.9060	3.23066	649

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Box's Test of Equality of Covariance Matrices[a]

Box's M	91.096
F	4.975
df1	18
df2	71839.592
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + studytime
Within Subjects Design: Time

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Time	Pillai's Trace	.049	16.435[b]	2.000	644.000	.000
	Wilks' Lambda	.951	16.435[b]	2.000	644.000	.000
	Hotelling's Trace	.051	16.435[b]	2.000	644.000	.000
	Roy's Largest Root	.051	16.435[b]	2.000	644.000	.000
Time * studytime	Pillai's Trace	.017	1.837	6.000	1290.000	.089
	Wilks' Lambda	.983	1.835[b]	6.000	1288.000	.089
	Hotelling's Trace	.017	1.833	6.000	1286.000	.089
	Roy's Largest Root	.011	2.446[c]	3.000	645.000	.063

Multivariate Tests[a]

Effect		Partial Eta Squared
Time	Pillai's Trace	.049
	Wilks' Lambda	.049
	Hotelling's Trace	.049
	Roy's Largest Root	.049
Time * studytime	Pillai's Trace	.008
	Wilks' Lambda	.008
	Hotelling's Trace	.008
	Roy's Largest Root	.011

a. Design: Intercept + studytime
Within Subjects Design: Time

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Mauchly's Test of Sphericity[a]

Measure: Grade

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser
Time	.826	122.879	2	.000	.852

Mauchly's Test of Sphericity[a]

Measure: Grade

Within Subjects Effect	Epsilon[b] Huynh-Feldt	Lower-bound
Time	.858	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept + studytime
Within Subjects Design: Time

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: Grade

Source		Type III Sum of Squares	df	Mean Square	F
Time	Sphericity Assumed	44.730	2	22.365	18.865
	Greenhouse-Geisser	44.730	1.704	26.250	18.865
	Huynh-Feldt	44.730	1.716	26.066	18.865
	Lower-bound	44.730	1.000	44.730	18.865
Time * studytime	Sphericity Assumed	12.312	6	2.052	1.731
	Greenhouse-Geisser	12.312	5.112	2.409	1.731
	Huynh-Feldt	12.312	5.148	2.392	1.731
	Lower-bound	12.312	3.000	4.104	1.731
Error(Time)	Sphericity Assumed	1529.357	1290	1.186	
	Greenhouse-Geisser	1529.357	1099.082	1.391	
	Huynh-Feldt	1529.357	1106.822	1.382	
	Lower-bound	1529.357	645.000	2.371	

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Tests of Within-Subjects Effects

Measure: Grade

Source		Sig.	Partial Eta Squared
Time	Sphericity Assumed	.000	.028
	Greenhouse-Geisser	.000	.028
	Huynh-Feldt	.000	.028
	Lower-bound	.000	.028
Time * studytime	Sphericity Assumed	.110	.008
	Greenhouse-Geisser	.123	.008
	Huynh-Feldt	.122	.008
	Lower-bound	.159	.008
Error(Time)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: Grade

Source	Time	Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Linear	41.967	1	41.967	25.401	.000
	Quadratic	2.763	1	2.763	3.844	.050
Time * studytime	Linear	8.447	3	2.816	1.704	.165
	Quadratic	3.866	3	1.289	1.792	.147
Error(Time)	Linear	1065.663	645	1.652		
	Quadratic	463.694	645	.719		

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Tests of Within-Subjects Contrasts

Measure: Grade

Source	Time	Partial Eta Squared
Time	Linear	.038
	Quadratic	.006
Time * studytime	Linear	.008
	Quadratic	.008
Error(Time)	Linear	
	Quadratic	

Levene's Test of Equality of Error Variances[a]

		Levene Statistic	df1	df2	Sig.
G1	Based on Mean	.542	3	645	.653
	Based on Median	.555	3	645	.645
	Based on Median and with adjusted df	.555	3	637.966	.645
	Based on trimmed mean	.547	3	645	.650
G2	Based on Mean	1.703	3	645	.165
	Based on Median	1.613	3	645	.185
	Based on Median and with adjusted df	1.613	3	626.977	.185
	Based on trimmed mean	1.688	3	645	.168
G3	Based on Mean	.985	3	645	.400
	Based on Median	1.026	3	645	.380
	Based on Median and with adjusted df	1.026	3	609.885	.380
	Based on trimmed mean	1.081	3	645	.356

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + studytime
Within Subjects Design: Time

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

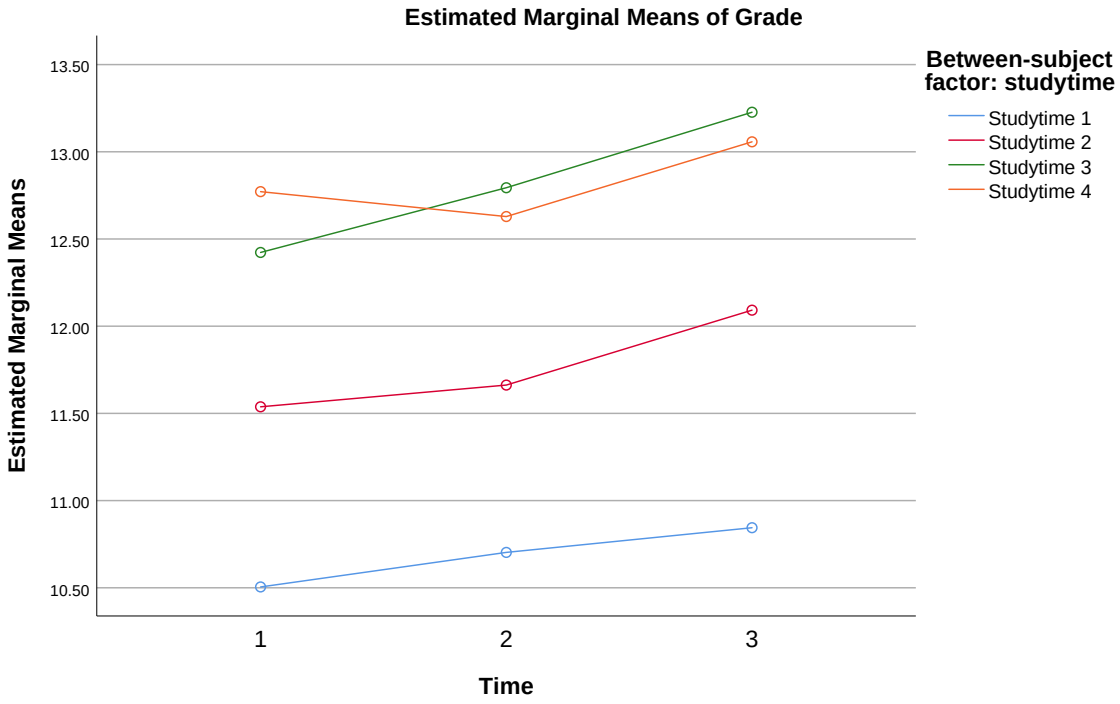
Tests of Between-Subjects Effects

Measure: Grade

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	147952.061	1	147952.061	6597.684	.000	.911
studytime	1142.269	3	380.756	16.979	.000	.073
Error	14464.028	645	22.425			

Profile Plots



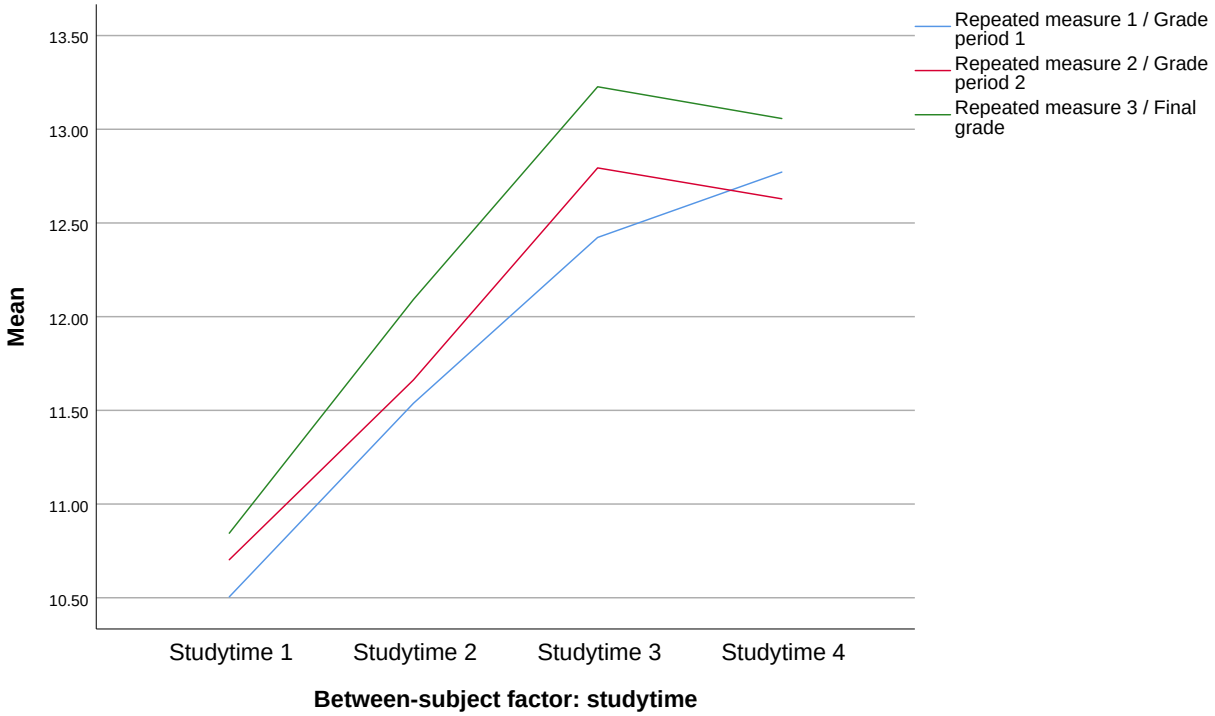
Graph

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f

Notes

Output Created		23-JUN-2026 09:31:53
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\Split Plot ANOVA\SPSS_Output\sav \split_plot_anova_spss_re ady_data.sav
	Active Dataset	SplitPlotANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /LINE(MULTIPLE) =MEAN(G1) MEAN(G2) MEAN(G3) BY studytime.
Resources	Processor Time	00:00:00.58
	Elapsed Time	00:00:00.59

Split Plot ANOVA / Mixed Repeated-Measures ANOVA
Repeated measures: G1, G2, G3; within factor Time; between f




```
  File "<string>", line 15
    report.append(f"Dataset: {CSV_FILE}")
                                         ^
SyntaxError: invalid syntax
```