

Host

Notes

Output Created		22-JUN-2026 23:43:19
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\MANOVA\SPSS_O utput" mkdir "D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_O utput"'].	
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.13

Host

Notes

Output Created		22-JUN-2026 23:43:19
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\MANOVA\SPSS_O utput\sav" mkdir "D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_O utput\sav"'].	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.09

Host

Notes

Output Created		22-JUN-2026 23:43:19
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\MANOVA\SPSS_O utput\spv" mkdir "D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_O utput\spv"'].	
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.08

Host

Notes

Output Created		22-JUN-2026 23:43:19
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\MANOVA\SPSS_O utput\pdf" mkdir "D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_O utput\pdf"'].	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.17

Host

Notes

Output Created		22-JUN-2026 23:43:20
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\MANOVA\SPSS_O utput\png" mkdir "D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_O utput\png"'].	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.20

Host

Notes

Output Created		22-JUN-2026 23:43:20
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\MANOVA\SPSS_O utput\csv" mkdir "D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_O utput\csv"'].	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.18

Host

Notes

Output Created	22-JUN-2026 23:43:20	
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\MANOVA\SPSS_O utput\txt" mkdir "D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_O utput\txt"'].	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.23

MANOVA: G1, G2, and G3 by Studytime

Means

Notes

Output Created		22-JUN-2026 23:43:23
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_Output\sav\manova_spss_ready_data.sav
	Active Dataset	MANOVAData
	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 MEDIAN MIN MAX.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.30

[MANOVAData] D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_Output\sav\manova_spss_ready_data.sav

MANOVA: G1, G2, and G3 by Studytime

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
1.00	N	212	212	212
	Mean	10.5047	10.7028	10.8443
	Std. Deviation	2.56572	2.69656	3.21862
	Median	10.0000	11.0000	11.0000
	Minimum	4.00	.00	.00
	Maximum	18.00	18.00	18.00
2.00	N	305	305	305
	Mean	11.5377	11.6623	12.0918
	Std. Deviation	2.73730	2.98252	3.24313
	Median	12.0000	12.0000	12.0000
	Minimum	.00	.00	.00
	Maximum	18.00	18.00	19.00
3.00	N	97	97	97
	Mean	12.4227	12.7938	13.2268
	Std. Deviation	2.45728	2.46195	2.50210
	Median	13.0000	13.0000	13.0000
	Minimum	7.00	7.00	8.00
	Maximum	19.00	18.00	18.00
4.00	N	35	35	35
	Mean	12.7714	12.6286	13.0571
	Std. Deviation	2.94145	3.13506	3.03841
	Median	13.0000	12.0000	13.0000
	Minimum	5.00	6.00	6.00
	Maximum	18.00	19.00	19.00

MANOVA: G1, G2, and G3 by Studytime

Report

studytime		G1	G2	G3
Total	N	649	649	649
	Mean	11.3991	11.5701	11.9060
	Std. Deviation	2.74527	2.91364	3.23066
	Median	11.0000	11.0000	12.0000
	Minimum	.00	.00	.00
	Maximum	19.00	19.00	19.00

General Linear Model

Notes

Output Created		22-JUN-2026 23:43:23
Comments		
Input	Data	D:\DATA ANALYSIS\E ANOVA Family\MANOVA\SPSS_Output\sav\manova_spss_ready_data.sav
	Active Dataset	MANOVAData
	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 /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY /CRITERIA=ALPHA(.05) /DESIGN=studytime.	

MANOVA: G1, G2, and G3 by Studytime

Notes

Resources	Processor Time	00:00:00.08
	Elapsed Time	00:00:00.42

Between-Subjects Factors

		Value Label	N
studytime	1.00	Studytime 1	212
	2.00	Studytime 2	305
	3.00	Studytime 3	97
	4.00	Studytime 4	35

Descriptive Statistics

	studytime	Mean	Std. Deviation	N
G1	1.00	10.5047	2.56572	212
	2.00	11.5377	2.73730	305
	3.00	12.4227	2.45728	97
	4.00	12.7714	2.94145	35
	Total	11.3991	2.74527	649
G2	1.00	10.7028	2.69656	212
	2.00	11.6623	2.98252	305
	3.00	12.7938	2.46195	97
	4.00	12.6286	3.13506	35
	Total	11.5701	2.91364	649
G3	1.00	10.8443	3.21862	212
	2.00	12.0918	3.24313	305
	3.00	13.2268	2.50210	97
	4.00	13.0571	3.03841	35
	Total	11.9060	3.23066	649

MANOVA: G1, G2, and G3 by Studytime

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

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.915	2320.361 ^b	3.000	643.000	.000
	Wilks' Lambda	.085	2320.361 ^b	3.000	643.000	.000
	Hotelling's Trace	10.826	2320.361 ^b	3.000	643.000	.000
	Roy's Largest Root	10.826	2320.361 ^b	3.000	643.000	.000
studytime	Pillai's Trace	.085	6.242	9.000	1935.000	.000
	Wilks' Lambda	.916	6.382	9.000	1565.044	.000
	Hotelling's Trace	.091	6.486	9.000	1925.000	.000
	Roy's Largest Root	.082	17.728 ^c	3.000	645.000	.000

MANOVA: G1, G2, and G3 by Studytime

Multivariate Tests^a

Effect		Partial Eta Squared
Intercept	Pillai's Trace	.915
	Wilks' Lambda	.915
	Hotelling's Trace	.915
	Roy's Largest Root	.915
studytime	Pillai's Trace	.028
	Wilks' Lambda	.029
	Hotelling's Trace	.029
	Roy's Largest Root	.076

a. Design: Intercept + studytime

b. Exact statistic

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

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

MANOVA: G1, G2, and G3 by Studytime

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F
Corrected Model	G1	342.986 ^a	3	114.329	16.240
	G2	346.518 ^b	3	115.506	14.454
	G3	465.078 ^c	3	155.026	15.876
Intercept	G1	47599.452	1	47599.452	6761.504
	G2	48716.355	1	48716.355	6095.992
	G3	51680.984	1	51680.984	5292.670
studytime	G1	342.986	3	114.329	16.240
	G2	346.518	3	115.506	14.454
	G3	465.078	3	155.026	15.876
Error	G1	4540.653	645	7.040	
	G2	5154.542	645	7.992	
	G3	6298.189	645	9.765	
Total	G1	89214.000	649		
	G2	92381.000	649		
	G3	98761.000	649		
Corrected Total	G1	4883.639	648		
	G2	5501.060	648		
	G3	6763.267	648		

MANOVA: G1, G2, and G3 by Studytime

Tests of Between-Subjects Effects

Source	Dependent Variable	Sig.	Partial Eta Squared
Corrected Model	G1	.000	.070
	G2	.000	.063
	G3	.000	.069
Intercept	G1	.000	.913
	G2	.000	.904
	G3	.000	.891
studytime	G1	.000	.070
	G2	.000	.063
	G3	.000	.069
Error	G1		
	G2		
	G3		
Total	G1		
	G2		
	G3		
Corrected Total	G1		
	G2		
	G3		

a. R Squared = .070 (Adjusted R Squared = .066)

b. R Squared = .063 (Adjusted R Squared = .059)

c. R Squared = .069 (Adjusted R Squared = .064)

Graph

MANOVA: G1, G2, and G3 by Studytime

Notes

Output Created		22-JUN-2026 23:43:24
Comments		
Input	Data	D:\DATA ANALYSIS\EANOVA Family\MANOVA\SPSS_Output\sav\manova_spss_ready_data.sav
	Active Dataset	MANOVADData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /BOXPLOT=G1 BY studytime /TITLE='MANOVA: G1 Distribution by Studytime Group'.
Resources	Processor Time	00:00:00.08
	Elapsed Time	00:00:00.08

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

Graph

MANOVA: G1, G2, and G3 by Studytime

Notes

Output Created		22-JUN-2026 23:43:24
Comments		
Input	Data	D:\DATA ANALYSIS\IE ANOVA Family\MANOVA\SPSS_Output\sav\manova_spss_ready_data.sav
	Active Dataset	MANOVAData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		GRAPH /BOXPLOT=G2 BY studytime /TITLE='MANOVA: G2 Distribution by Studytime Group'.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

Graph

MANOVA: G1, G2, and G3 by Studytime

Notes

Output Created		22-JUN-2026 23:43:24
Comments		
Input	Data	D:\DATA ANALYSIS\IE ANOVA Family\MANOVA\SPSS_Output\sav\manova_spss_ready_data.sav
	Active Dataset	MANOVADData
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		GRAPH /BOXPLOT=G3 BY studytime /TITLE='MANOVA: G3 Distribution by Studytime Group'.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

```
>Error # 17804 in column 4. Text: BOXPLOT
>Unrecognized subcommand was found. Recognized subcommands are: TITLE,
>SUBTITLE, FOOTNOTE, BAR, PIE, LINE, HISTOGRAM, SCATTERPLOT, HILO, ERRORBAR and
>TEMPLATE. Skipping to a "/".
>Execution of this command stops.
```

```
File "<string>", line 15
  report_lines.append(f"CSV file: {csv_file}")
  ^
```

SyntaxError: invalid syntax