

```

* =====.
* Huynh-Feldt Correction " SPSS Step 3 Auto-Save Syntax
* This version automatically creates a new SPSS folder and saves:
* 1. SPSS Viewer file (.spv)
* 2. SPSS PDF output (.pdf)
* 3. SPSS cleaned data file (.sav)
*
* Base folder:
* D:\low kda score priority basis posts\first post\Huynh Feldt Correction
*
* Clean CSV input:
* D:\low kda score priority basis posts\first post\Huynh Feldt Correction\Py
thon\huynh_feldt_correction_python_clean_data.csv
*
* Output folder automatically created:
* D:\low kda score priority basis posts\first post\Huynh Feldt Correction\SP
SS
* =====.

```

```

* -----.
* 1. Base folder and automatic SPSS folder creation.
* -----.

```

```
CD 'D:\low kda score priority basis posts\first post\Huynh Feldt Correction'.
```

```
HOST COMMAND=['cmd /c if not exist "D:\low kda score priority basis posts\first
post\Huynh Feldt Correction\SPSS" mkdir "D:\low kda score priority basis pos
ts\first post\Huynh Feldt Correction\SPSS"'].

```

Host

```

* -----.
* 2. Import clean CSV created by Python.
* -----.

```

```

GET DATA
  /TYPE=TEXT
  /FILE='D:\low kda score priority basis posts\first post\Huynh Feldt Correcti
on\Python\huynh_feldt_correction_python_clean_data.csv'
  /ENCODING='UTF8'

```

```
/DELCASE=LINE
/DELIMITERS=" , "
/QUALIFIER=' ' '
/ARRANGEMENT=DELIMITED
/FIRSTCASE=2
/DATATYPEMIN PERCENTAGE=95.0
/VARIABLES=
  subject_id F8.0
  school A20
  sex A10
  age F8.0
  address A20
  famsize A20
  Pstatus A20
  Medu F8.0
  Fedu F8.0
  Mjob A30
  Fjob A30
  reason A30
  guardian A30
  traveltime F8.0
  studytime F8.0
  failures F8.0
  schoolsup A10
  famsup A10
  paid A10
  activities A10
  nursery A10
  higher A10
  internet A10
  romantic A10
  famrel F8.0
  freetime F8.0
  goout F8.0
  Dalc F8.0
  Walc F8.0
  health F8.0
  absences F8.0
  G1 F8.0
  G2 F8.0
  G3 F8.0
/MAP.
```

CACHE.
EXECUTE.

Data written to the working file.
34 variables and 649 cases written.

Variable: subject_id	Type: Number	Format : F8
Variable: school	Type: String	Format : A20
Variable: sex	Type: String	Format : A10
Variable: age	Type: Number	Format : F8
Variable: address	Type: String	Format : A20
Variable: famsize	Type: String	Format : A20
Variable: Pstatus	Type: String	Format : A20
Variable: Medu	Type: Number	Format : F8
Variable: Fedu	Type: Number	Format : F8
Variable: Mjob	Type: String	Format : A30
Variable: Fjob	Type: String	Format : A30
Variable: reason	Type: String	Format : A30
Variable: guardian	Type: String	Format : A30
Variable: travelttime	Type: Number	Format : F8
Variable: studytime	Type: Number	Format : F8
Variable: failures	Type: Number	Format : F8
Variable: schoolsup	Type: String	Format : A10
Variable: famsup	Type: String	Format : A10
Variable: paid	Type: String	Format : A10
Variable: activities	Type: String	Format : A10
Variable: nursery	Type: String	Format : A10
Variable: higher	Type: String	Format : A10
Variable: internet	Type: String	Format : A10
Variable: romantic	Type: String	Format : A10
Variable: famrel	Type: Number	Format : F8
Variable: freetime	Type: Number	Format : F8
Variable: goout	Type: Number	Format : F8
Variable: Dalc	Type: Number	Format : F8
Variable: Walc	Type: Number	Format : F8
Variable: health	Type: Number	Format : F8
Variable: absences	Type: Number	Format : F8
Variable: G1	Type: Number	Format : F8
Variable: G2	Type: Number	Format : F8
Variable: G3	Type: Number	Format : F8

DATASET NAME HuynhFeldtData WINDOW=FRONT.

Dataset Name

Warnings

The active dataset will replace the existing dataset named
HuynhFeldtData.

```
* -----.  
* 3. Labels and formatting.  
* -----.
```

VARIABLE LABELS

```
subject_id "Student subject ID"  
school "School"  
sex "Student sex"  
age "Student age"  
address "Home address type"  
famsize "Family size"  
Pstatus "Parent cohabitation status"  
Medu "Mother education level"  
Fedu "Father education level"  
Mjob "Mother job"  
Fjob "Father job"  
reason "Reason for choosing school"  
guardian "Student guardian"  
traveltime "Home-to-school travel time"  
studytime "Weekly study time group"  
failures "Number of past class failures"  
schoolsup "Extra educational support from school"  
famsup "Family educational support"  
paid "Extra paid classes"  
activities "Extra-curricular activities"  
nursery "Attended nursery school"  
higher "Wants higher education"  
internet "Internet access at home"  
romantic "Romantic relationship"  
famrel "Quality of family relationships"  
freetime "Free time after school"  
goout "Going out with friends"  
Dalc "Workday alcohol consumption"  
Walc "Weekend alcohol consumption"  
health "Current health status"
```

absences "Number of school absences"
G1 "First period grade"
G2 "Second period grade"
G3 "Final grade".

FORMATS

subject_id age Medu Fedu traveltime studytime failures famrel freetime goout
Dalc Walc health absences G1 G2 G3 (F8.2).

EXECUTE.

* -----.
* 4. Quick data check.
* -----.

TITLE "Huynh-Feldt Data Check".

Huynh-Feldt Data Check

```
DESCRIPTIVES VARIABLES=G1 G2 G3
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
First period grade	649	.00	19.00	11.3991	2.74527
Second period grade	649	.00	19.00	11.5701	2.91364
Final grade	649	.00	19.00	11.9060	3.23066
Valid N (listwise)	649				

CORRELATIONS

```
/VARIABLES=G1 G2 G3
/PRINT=TWOTAIL NOSIG
/MISSING=PAIRWISE.
```

Correlations

Correlations

		First period grade	Second period grade	Final grade
First period grade	Pearson Correlation	1	.865**	.826**
	Sig. (2-tailed)		.000	.000
	N	649	649	649
Second period grade	Pearson Correlation	.865**	1	.919**
	Sig. (2-tailed)	.000		.000
	N	649	649	649
Final grade	Pearson Correlation	.826**	.919**	1
	Sig. (2-tailed)	.000	.000	
	N	649	649	649

** . Correlation is significant at the 0.01 level (2-tailed).

- * ----- .
- * 5. Repeated-measures ANOVA.
- * SPSS GLM output includes:
- * - Mauchly's Test of Sphericity

Huynh-Feldt Data Check

- * - Sphericity Assumed
- * - Greenhouse-Geisser
- * - Huynh-Feldt
- * - Lower-bound
- * ----- .

TITLE "Huynh-Feldt Repeated-Measures ANOVA".

Huynh-Feldt Repeated-Measures ANOVA

```

GLM G1 G2 G3
  /WSFACTOR=GradeTime 3 Polynomial
  /MEASURE=Grade
  /METHOD=SSTYPE(3)
  /PRINT=DESCRIPTIVE ETASQ
  /CRITERIA=ALPHA(.05)
  /WSDSIGN=GradeTime.
    
```

General Linear Model

Within-Subjects Factors

Measure: Grade

GradeTime	Dependent Variable
1	G1
2	G2
3	G3

Descriptive Statistics

	Mean	Std. Deviation	N
First period grade	11.3991	2.74527	649
Second period grade	11.5701	2.91364	649
Final grade	11.9060	3.23066	649

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.
GradeTime	Pillai's Trace	.085	29.882 ^b	2.000	647.000	.000
	Wilks' Lambda	.915	29.882 ^b	2.000	647.000	.000
	Hotelling's Trace	.092	29.882 ^b	2.000	647.000	.000
	Roy's Largest Root	.092	29.882 ^b	2.000	647.000	.000

Huynh-Feldt Repeated-Measures ANOVA

Multivariate Tests^a

Effect		Partial Eta Squared
GradeTime	Pillai's Trace	.085
	Wilks' Lambda	.085
	Hotelling's Trace	.085
	Roy's Largest Root	.085

- a. Design: Intercept
Within Subjects Design: GradeTime
- b. Exact statistic

Mauchly's Test of Sphericity^a

Measure: Grade

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b Greenhouse-Geisser
GradeTime	.827	122.814	2	.000	.853

Mauchly's Test of Sphericity^a

Measure: Grade

Within Subjects Effect	Epsilon ^b	
	Huynh-Feldt	Lower-bound
GradeTime	.855	.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
Within Subjects Design: GradeTime
- 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.

Huynh-Feldt Repeated-Measures ANOVA

Tests of Within-Subjects Effects

Measure: Grade

Source		Type III Sum of Squares	df	Mean Square	F
GradeTime	Sphericity Assumed	86.331	2	43.165	36.287
	Greenhouse-Geisser	86.331	1.705	50.628	36.287
	Huynh-Feldt	86.331	1.709	50.509	36.287
	Lower-bound	86.331	1.000	86.331	36.287
Error(GradeTime)	Sphericity Assumed	1541.669	1296	1.190	
	Greenhouse-Geisser	1541.669	1104.961	1.395	
	Huynh-Feldt	1541.669	1107.581	1.392	
	Lower-bound	1541.669	648.000	2.379	

Tests of Within-Subjects Effects

Measure: Grade

Source		Sig.	Partial Eta Squared
GradeTime	Sphericity Assumed	.000	.053
	Greenhouse-Geisser	.000	.053
	Huynh-Feldt	.000	.053
	Lower-bound	.000	.053
Error(GradeTime)	Sphericity Assumed		
	Greenhouse-Geisser		
	Huynh-Feldt		
	Lower-bound		

Tests of Within-Subjects Contrasts

Measure: Grade

Source	GradeTime	Type III Sum of Squares	df	Mean Square	F	Sig.
GradeTime	Linear	83.391	1	83.391	50.309	.000
	Quadratic	2.940	1	2.940	4.075	.044
Error(GradeTime)	Linear	1074.109	648	1.658		
	Quadratic	467.560	648	.722		

Huynh-Feldt Repeated-Measures ANOVA

Tests of Within-Subjects Contrasts

Measure: Grade

Source	GradeTime	Partial Eta Squared
GradeTime	Linear	.072
	Quadratic	.006
Error(GradeTime)	Linear	
	Quadratic	

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	263121.703	1	263121.703	10925.261	.000	.944
Error	15606.297	648	24.084			

```
* -----
* 6. Create pairwise difference variables for sphericity explanation.
* -----
```

```
COMPUTE diff_G2_G1 = G2 - G1.
COMPUTE diff_G3_G2 = G3 - G2.
COMPUTE diff_G3_G1 = G3 - G1.
EXECUTE.
```

```
VARIABLE LABELS
  diff_G2_G1 "G2 minus G1"
  diff_G3_G2 "G3 minus G2"
  diff_G3_G1 "G3 minus G1".
```

```
TITLE "Pairwise Difference Descriptives".
```

Pairwise Difference Descriptives

```
DESCRIPTIVES VARIABLES=diff_G2_G1 diff_G3_G2 diff_G3_G1  
  /STATISTICS=MEAN STDDEV VARIANCE MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
G2 minus G1	649	-9.00	11.00	.1710	1.47929	2.188
G3 minus G2	649	-9.00	6.00	.3359	1.27824	1.634
G3 minus G1	649	-11.00	11.00	.5069	1.82076	3.315
Valid N (listwise)	649					

```
* -----  
* 7. Restructure copy to long format for SPSS charts.  
* -----
```

```
DATASET COPY HuynhFeldtLong.
```

Dataset Copy

Warnings

```
Replacing existing dataset named HuynhFeldtLong.
```

```
DATASET ACTIVATE HuynhFeldtLong.
```

```
VARSTOCASES
```

```
  /MAKE grade_value FROM G1 G2 G3
```

```
  /INDEX=grade_time(grade_value)
```

```
  /KEEP=subject_id school sex age address famsize Pstatus Medu Fedu Mjob Fjob  
reason guardian traveltime studytime failures schoolsup famsup paid activities  
nursery higher internet romantic famrel freetime goout Dalc Walc health absen  
ces
```

```
  /NULL=KEEP.
```

Variables to Cases

```
[HuynhFeldtLong]
```

Pairwise Difference Descriptives

Generated Variables

Name	Label
grade_time	<none>
grade_value	First period grade

Processing Statistics

Variables In	37
Variables Out	33

VALUE LABELS grade_time

1 "G1"
2 "G2"
3 "G3".

VARIABLE LABELS

grade_time "Repeated grade measure"
grade_value "Grade value".

EXECUTE.

* -----.
* 8. SPSS chart: grade distribution boxplot.
* -----.

TITLE "G1, G2 and G3 Grade Distributions".

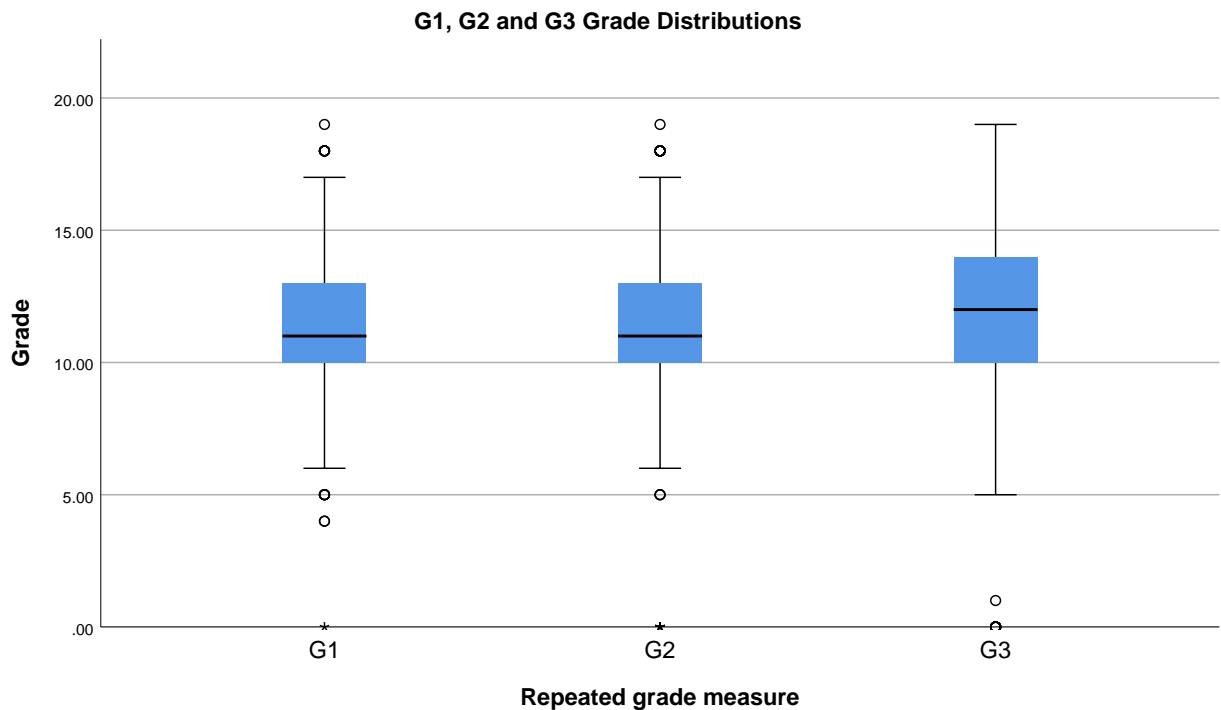
G1, G2 and G3 Grade Distributions

```

GGRAPH
  /GRAPHDATASET NAME="graphdataset" VARIABLES=grade_time grade_value
  /GRAPHSPEC SOURCE=INLINE.
BEGIN GPL
  SOURCE: s=userSource(id("graphdataset"))
  DATA: grade_time=col(source(s), name("grade_time"), unit.category())
  DATA: grade_value=col(source(s), name("grade_value"))
  GUIDE: axis(dim(1), label("Repeated grade measure"))
  GUIDE: axis(dim(2), label("Grade"))
  GUIDE: text.title(label("G1, G2 and G3 Grade Distributions"))
  ELEMENT: schema(position(bin.quantile.letter(grade_time*grade_value)))
END GPL.

```

GGraph



```

* -----
* 9. SPSS chart: mean grade profile.
* -----

```

```
TITLE "Mean G1, G2 and G3 Grades".
```

Mean G1, G2 and G3 Grades

GGRAPH

```
/GRAPHDATASET NAME="graphdataset" VARIABLES=grade_time MEAN(grade_value)[name="mean_grade"]
```

```
/GRAPHSPEC SOURCE=INLINE.
```

BEGIN GPL

```
SOURCE: s=userSource(id("graphdataset"))
```

```
DATA: grade_time=col(source(s), name("grade_time"), unit.category())
```

```
DATA: mean_grade=col(source(s), name("mean_grade"))
```

```
GUIDE: axis(dim(1), label("Repeated grade measure"))
```

```
GUIDE: axis(dim(2), label("Mean grade"))
```

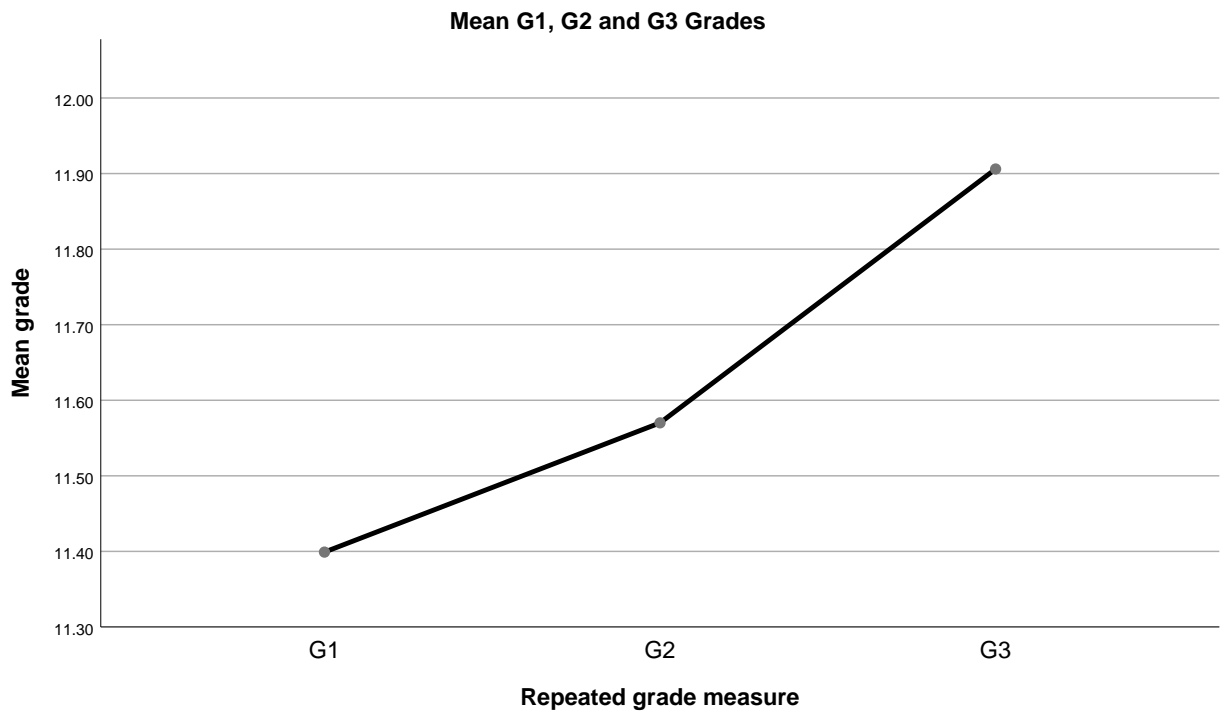
```
GUIDE: text.title(label("Mean G1, G2 and G3 Grades"))
```

```
ELEMENT: line(position(grade_time*mean_grade))
```

```
ELEMENT: point(position(grade_time*mean_grade))
```

END GPL.

GGraph



* -----.

* 10. Return to wide dataset and save SPSS data file automatically.

* -----.

Mean G1, G2 and G3 Grades

```
DATASET ACTIVATE HuynhFeldtData.
```

```
SAVE OUTFILE='D:\low kda score priority basis posts\first post\Huynh Feldt Cor  
rection\SPSS\huynh_feldt_correction_clean_data_for_spss.sav'  
/COMPRESSED.
```

```
EXECUTE.
```

```
* -----.  
* 11. Automatically save SPSS Viewer file.  
* -----.
```

```
OUTPUT SAVE
```

```
OUTFILE='D:\low kda score priority basis posts\first post\Huynh Feldt Correc  
tion\SPSS\Huynh-Feldt-Correction-SPSS-output.spv'.
```

```
* -----.  
* 12. Automatically export SPSS output to PDF.  
* Important:  
* This uses minimal OUTPUT EXPORT syntax for better compatibility.  
* It avoids EMBEDBOOKMARKS / EMBEDFONTS because some SPSS versions reject them  
.  
* -----.
```

```
OUTPUT EXPORT
```

```
/CONTENTS EXPORT=VISIBLE LAYERS=PRINTSETTING MODELVIEWS=PRINTSETTING
```