```
PROC MIXED DATA=tlclong;
CLASS id group time;
MODEL lead=group time group*time/S CHISQ;
REPEATED time/ TYPE=UN SUBJECT=id R RCORR;
RUN;
```

The Mixed Procedure

Model Information

Data Set	WORK.TLCLONG
Dependent Variable	lead
Covariance Structure	Unstructured
Subject Effect	id
Estimation Method	REML
Residual Variance Method	None
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Between-Within

Class Level Information

Class	Levels	Values
id	100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
group	2	A P
time	4	0 1 4 6

Dimensions

Covariance Parameters	10
Columns in X	15
Columns in Z	0
Subjects	100
Max Obs Per Subject	4

Number of Observations

Number of Observations Read	400
Number of Observations Used	400
Number of Observations Not Used	0

The Mixed Procedure

Iteration History

Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	2626.25517748	
1	1	2416.07594087	0.00000000

Convergence criteria met.

Estimated R Matrix for id 1

Row	Col1	Col2	Col3	Col4
1	25.2257	19.1074	19.6995	22.2016
2	19.1074	44.3458	35.5351	29.6750
3	19.6995	35.5351	47.3778	30.6205
4	22.2016	29.6750	30.6205	58.6510

Estimated R Correlation Matrix for id 1

Row	Col1	Col2	Col3	Col4
1	1.0000	0.5713	0.5698	0.5772
2	0.5713	1.0000	0.7753	0.5819
3	0.5698	0.7753	1.0000	0.5809
4	0.5772	0.5819	0.5809	1.0000

Covariance Parameter Estimates

Cov Parm	Subject	Estimate
UN(1,1)	id	25.2257
UN(2,1)	id	19.1074
UN(2,2)	id	44.3458
UN(3,1)	id	19.6995
UN(3,2)	id	35.5351
UN(3,3)	id	47.3778
UN(4,1)	id	22.2016
UN(4,2)	id	29.6750
UN(4,3)	id	30.6205
UN(4,4)	id	58.6510

Fit Statistics

-2 Res Log Likelihood	2416.1
AIC (smaller is better)	2436.1

The Mixed Procedure

Fit Statistics

AICC (smaller is better)	2436.7
BIC (smaller is better)	2462.1

Null Model Likelihood Ratio Test

DF	Chi-Square	Pr > ChiSq
9	210.18	<.0001

Solution for Fixed Effects

Effect	group	time	Estimate	Standard Error	DF	t Value	Pr > |t|
Intercept			23.6460	1.0831	98	21.83	<.0001
group	A		-2.8840	1.5317	98	-1.88	0.0627
group	P		0	.	.	.	.
time		0	2.6260	0.8885	98	2.96	0.0039
time		1	1.0140	0.9343	98	1.09	0.2805
time		4	0.4240	0.9464	98	0.45	0.6551
time		6	0	.	.	.	.
group*time	A	0	3.1520	1.2566	98	2.51	0.0138
group*time	A	1	-8.2540	1.3213	98	-6.25	<.0001
group*time	A	4	-5.6720	1.3385	98	-4.24	<.0001
group*time	A	6	0	.	.	.	.
group*time	P	0	0	.	.	.	.
group*time	P	1	0	.	.	.	.
group*time	P	4	0	.	.	.	.
group*time	P	6	0	.	.	.	.

Type 3 Tests of Fixed Effects

Effect	Num DF	Den DF	Chi-Square	F Value	Pr > ChiSq	Pr > F
group	1	98	25.43	25.43	<.0001	<.0001
time	3	98	184.48	61.49	<.0001	<.0001
group*time	3	98	107.79	35.93	<.0001	<.0001

```
PROC MIXED DATA=tlclong;
CLASS id group time;
MODEL lead=group time/S CHISQ;
REPEATED time/ TYPE=UN SUBJECT=id R RCORR;
RUN;
```

The Mixed Procedure

Model Information

Data Set	WORK.TLCLONG
Dependent Variable	lead
Covariance Structure	Unstructured
Subject Effect	id
Estimation Method	REML
Residual Variance Method	None
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Between-Within

Class Level Information

Class	Levels	Values
id	100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
group	2	A P
time	4	0 1 4 6

Dimensions

Covariance Parameters	10
Columns in X	7
Columns in Z	0
Subjects	100
Max Obs Per Subject	4

Number of Observations

Number of Observations Read	400
Number of Observations Used	400
Number of Observations Not Used	0

The Mixed Procedure

Iteration History

Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	2678.88635058	
1	4	2495.67752195	0.00050431
2	1	2495.18746939	0.00001832
3	1	2495.17082868	0.00000003
4	1	2495.17079932	0.00000000

Convergence criteria met.

Estimated R Matrix for id 1

Row	Col1	Col2	Col3	Col4
1	26.5255	13.9019	15.9746	21.7172
2	13.9019	65.1708	50.4988	31.6266
3	15.9746	50.4988	57.9551	31.9939
4	21.7172	31.6266	31.9939	58.4925

Estimated R Correlation Matrix for id 1

Row	Col1	Col2	Col3	Col4
1	1.0000	0.3344	0.4074	0.5513
2	0.3344	1.0000	0.8217	0.5122
3	0.4074	0.8217	1.0000	0.5495
4	0.5513	0.5122	0.5495	1.0000

Covariance Parameter Estimates

Cov Parm	Subject	Estimate
UN(1,1)	id	26.5255
UN(2,1)	id	13.9019
UN(2,2)	id	65.1708
UN(3,1)	id	15.9746
UN(3,2)	id	50.4988
UN(3,3)	id	57.9551
UN(4,1)	id	21.7172
UN(4,2)	id	31.6266
UN(4,3)	id	31.9939
UN(4,4)	id	58.4925

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood	2495.2
AIC (smaller is better)	2515.2
AICC (smaller is better)	2515.7
BIC (smaller is better)	2541.2

Null Model Likelihood Ratio Test

DF	Chi-Square	Pr > ChiSq
9	183.72	<.0001

Solution for Fixed Effects

Effect	group	time	Estimate	Standard Error	DF	t Value	Pr > |t|
Intercept			23.2100	0.9080	98	25.56	<.0001
group	A		-2.0120	0.9787	98	-2.06	0.0425
group	P		0	.	.	.	.
time		0	4.2020	0.6449	98	6.52	<.0001
time		1	-3.1130	0.7772	98	-4.01	0.0001
time		4	-2.4120	0.7243	98	-3.33	0.0012
time		6	0	.	.	.	.

Type 3 Tests of Fixed Effects

Effect	Num DF	Den DF	Chi-Square	F Value	Pr > ChiSq	Pr > F
group	1	98	4.23	4.23	0.0398	0.0425
time	3	98	97.54	32.51	<.0001	<.0001

```
PROC MIXED DATA=tlclong;
CLASS id group time2;
MODEL lead=group time2/S CHISQ;
REPEATED time2/ TYPE=UN SUBJECT=id R RCORR;
RUN;
```

The Mixed Procedure

Model Information

Data Set	WORK.TLCLONG
Dependent Variable	lead
Covariance Structure	Unstructured
Subject Effect	id
Estimation Method	REML
Residual Variance Method	None
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Between-Within

Class Level Information

Class	Levels	Values
id	100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
group	2	A P
time2	4	0 2 5 6

Dimensions

Covariance Parameters	10
Columns in X	7
Columns in Z	0
Subjects	100
Max Obs Per Subject	4

Number of Observations

Number of Observations Read	400
Number of Observations Used	400
Number of Observations Not Used	0

The Mixed Procedure

Iteration History

Iteration	Evaluations	-2 Res Log Like	Criterion
0	1	2678.88635058	
1	4	2495.67752195	0.00050431
2	1	2495.18746939	0.00001832
3	1	2495.17082868	0.00000003
4	1	2495.17079932	0.00000000

Convergence criteria met.

Estimated R Matrix for id 1

Row	Col1	Col2	Col3	Col4
1	26.5255	13.9019	15.9746	21.7172
2	13.9019	65.1708	50.4988	31.6266
3	15.9746	50.4988	57.9551	31.9939
4	21.7172	31.6266	31.9939	58.4925

Estimated R Correlation Matrix for id 1

Row	Col1	Col2	Col3	Col4
1	1.0000	0.3344	0.4074	0.5513
2	0.3344	1.0000	0.8217	0.5122
3	0.4074	0.8217	1.0000	0.5495
4	0.5513	0.5122	0.5495	1.0000

Covariance Parameter Estimates

Cov Parm	Subject	Estimate
UN(1,1)	id	58.4925
UN(2,1)	id	31.9939
UN(2,2)	id	57.9551
UN(3,1)	id	31.6266
UN(3,2)	id	50.4988
UN(3,3)	id	65.1708
UN(4,1)	id	21.7172
UN(4,2)	id	15.9746
UN(4,3)	id	13.9019
UN(4,4)	id	26.5255

The Mixed Procedure

Fit Statistics

-2 Res Log Likelihood	2495.2
AIC (smaller is better)	2515.2
AICC (smaller is better)	2515.7
BIC (smaller is better)	2541.2

Null Model Likelihood Ratio Test

DF	Chi-Square	Pr > ChiSq
9	183.72	<.0001

Solution for Fixed Effects

Effect	group	time2	Estimate	Standard Error	DF	t Value	Pr > |t|
Intercept			27.4120	0.7104	98	38.59	<.0001
group	A		-2.0120	0.9787	98	-2.06	0.0425
group	P		0	.	.	.	.
time2		6	-4.2020	0.6449	98	-6.52	<.0001
time2		4	-6.6140	0.7248	98	-9.13	<.0001
time2		1	-7.3150	0.7993	98	-9.15	<.0001
time2		0	0	.	.	.	.

Type 3 Tests of Fixed Effects

Effect	Num DF	Den DF	Chi-Square	F Value	Pr > ChiSq	Pr > F
group	1	98	4.23	4.23	0.0398	0.0425
time2	3	98	97.54	32.51	<.0001	<.0001