The FREQ Procedure

Frequency Row Pct	Table of Sex by Survived		
	Survived		
Sex	0	1	Total
female	154 33.33	308 66.67	462
male	709 83.31	142 16.69	851
Total	863	450	1313

Statistics for Table of Sex by Survived

Odds Ratio and Relative Risks			
Statistic	Value	95% Confidence Limits	
Odds Ratio	0.1001	0.0769	0.1304
Relative Risk (Column 1)	0.4001	0.3505	0.4567
Relative Risk (Column 2)	3.9953	3.3931	4.7044

Sample Size = 1313

The LOGISTIC Procedure

Model Information	
Data Set	INTRO.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	1313
Number of Observations Used	1313

Response Profile		
Ordered Value	**Survived**	**Total Frequency**
1	0	863
2	1	450

Probability modeled is Survived='0'.

Class Level Information		
Class	**Value**	**Design Variables**
Sex	**female**	1
	male	-1

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	1690.065	1359.531
SC	1695.245	1369.891
-2 Log L	1688.065	1355.531

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	332.5344	1	<.0001
Score	332.0570	1	<.0001
Wald	291.0644	1	<.0001

The LOGISTIC Procedure

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
Sex	1	291.0644	<.0001

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	0.4574	0.0674	46.0047	<.0001
Sex	female	1	-1.1506	0.0674	291.0644	<.0001

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
Sex female vs male	0.100	0.077	0.130

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	56.2	Somers' D	0.506
Percent Discordant	5.6	Gamma	0.818
Percent Tied	38.1	Tau-a	0.228
Pairs	388350	c	0.753

The LOGISTIC Procedure

Model Information	
Data Set	INTRO.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	1313
Number of Observations Used	1313

Response Profile		
Ordered Value	**Survived**	**Total Frequency**
1	0	863
2	1	450

Probability modeled is Survived='1'.

Class Level Information		
Class	**Value**	**Design Variables**
Sex	**female**	1
	male	-1

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	1690.065	1359.531
SC	1695.245	1369.891
-2 Log L	1688.065	1355.531

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	332.5344	1	<.0001
Score	332.0570	1	<.0001
Wald	291.0644	1	<.0001

The LOGISTIC Procedure

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
Sex	1	291.0644	<.0001

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	-0.4574	0.0674	46.0047	<.0001
Sex	female	1	1.1506	0.0674	291.0644	<.0001

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
Sex female vs male	9.986	7.666	13.007

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	56.2	Somers' D	0.506
Percent Discordant	5.6	Gamma	0.818
Percent Tied	38.1	Tau-a	0.228
Pairs	388350	c	0.753

The LOGISTIC Procedure

Model Information	
Data Set	INTRO.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	1313
Number of Observations Used	1313

Response Profile		
Ordered Value	**Survived**	**Total Frequency**
1	0	863
2	1	450

Probability modeled is Survived='0'.

Class Level Information		
Class	**Value**	**Design Variables**
Sex	**female**	-1
	male	1

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	1690.065	1359.531
SC	1695.245	1369.891
-2 Log L	1688.065	1355.531

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	332.5344	1	<.0001
Score	332.0570	1	<.0001
Wald	291.0644	1	<.0001

The LOGISTIC Procedure

Type 3 Analysis of Effects			
Effect	**DF**	**Wald Chi-Square**	**Pr > ChiSq**
Sex	1	291.0644	<.0001

Analysis of Maximum Likelihood Estimates						
Parameter		**DF**	**Estimate**	**Standard Error**	**Wald Chi-Square**	**Pr > ChiSq**
Intercept		1	0.4574	0.0674	46.0047	<.0001
Sex	**male**	1	1.1506	0.0674	291.0644	<.0001

Odds Ratio Estimates			
Effect	**Point Estimate**	**95% Wald Confidence Limits**	
Sex male vs female	9.986	7.666	13.007

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	56.2	**Somers' D**	0.506
Percent Discordant	5.6	**Gamma**	0.818
Percent Tied	38.1	**Tau-a**	0.228
Pairs	388350	**c**	0.753

The GENMOD Procedure

Model Information	
Data Set	INTRO.TITANIC
Distribution	Binomial
Link Function	Logit
Dependent Variable	Survived

Number of Observations Read	1313
Number of Observations Used	1313
Number of Events	863
Number of Trials	1313

Class Level Information		
Class	**Levels**	**Values**
Sex	2	female male

Response Profile		
Ordered Value	**Survived**	**Total Frequency**
1	0	863
2	1	450

PROC GENMOD is modeling the probability that Survived='0'. One way to change this to model the probability that Survived='1' is to specify the DESCENDING option in the PROC statement.

Criteria For Assessing Goodness Of Fit			
Criterion	**DF**	**Value**	**Value/DF**
Log Likelihood		-677.7653	
Full Log Likelihood		-677.7653	
AIC (smaller is better)		1359.5305	
AICC (smaller is better)		1359.5397	
BIC (smaller is better)		1369.8907	

Algorithm converged.

The GENMOD Procedure

Analysis Of Maximum Likelihood Parameter Estimates								
Parameter		**DF**	**Estimate**	**Standard Error**	**Wald 95% Confidence Limits**		**Wald Chi-Square**	**Pr > ChiSq**
Intercept		1	1.6080	0.0919	1.4278	1.7882	305.91	<.0001
Sex	female	1	-2.3012	0.1349	-2.5655	-2.0368	291.07	<.0001
Sex	male	0	0.0000	0.0000	0.0000	0.0000	.	.
Scale		0	1.0000	0.0000	1.0000	1.0000		

Note: The scale parameter was held fixed.

The FREQ Procedure

Frequency Row Pct	Table of PClass by Survived		
	Survived		
PClass	**0**	**1**	**Total**
1st	129 40.06	193 59.94	322
2nd	161 57.50	119 42.50	280
3rd	573 80.59	138 19.41	711
Total	863	450	1313

The LOGISTIC Procedure

Model Information	
Data Set	INTRO.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	1313
Number of Observations Used	1313

Response Profile		
Ordered Value	**Survived**	**Total Frequency**
1	0	863
2	1	450

Probability modeled is Survived='0'.

Class Level Information			
Class	**Value**	**Design Variables**	
PClass	**1st**	1	0
	2nd	0	1
	3rd	-1	-1

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	1690.065	1521.191
SC	1695.245	1536.731
-2 Log L	1688.065	1515.191

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	172.8740	2	<.0001
Score	172.2991	2	<.0001
Wald	159.1198	2	<.0001

The LOGISTIC Procedure

Type 3 Analysis of Effects			
Effect	**DF**	**Wald Chi-Square**	**Pr > ChiSq**
PClass	2	159.1198	<.0001

Analysis of Maximum Likelihood Estimates						
Parameter		**DF**	**Estimate**	**Standard Error**	**Wald Chi-Square**	**Pr > ChiSq**
Intercept		1	0.4410	0.0637	47.9048	<.0001
PClass	**1st**	1	-0.8439	0.0915	85.0729	<.0001
PClass	**2nd**	1	-0.1387	0.0945	2.1548	0.1421

Odds Ratio Estimates			
Effect	**Point Estimate**	**95% Wald Confidence Limits**	
PClass 1st vs 3rd	0.161	0.120	0.215
PClass 2nd vs 3rd	0.326	0.241	0.440

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	54.0	**Somers' D**	0.398
Percent Discordant	14.3	**Gamma**	0.582
Percent Tied	31.7	**Tau-a**	0.179
Pairs	388350	**c**	0.699

The FREQ Procedure

Frequency Row Pct	Table of child by Survived		
	Survived		
child	0	1	Total
0	358 61.30	226 38.70	584
1	505 69.27	224 30.73	729
Total	863	450	1313

Statistics for Table of child by Survived

Odds Ratio and Relative Risks			
Statistic	Value	95% Confidence Limits	
Odds Ratio	0.7026	0.5588	0.8835
Relative Risk (Column 1)	0.8849	0.8164	0.9592
Relative Risk (Column 2)	1.2594	1.0847	1.4623

Sample Size = 1313

The LOGISTIC Procedure

Model Information	
Data Set	WORK.AGE
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	1313
Number of Observations Used	1313

Response Profile		
Ordered Value	**Survived**	**Total Frequency**
1	0	863
2	1	450

Probability modeled is Survived='0'.

Class Level Information		
Class	**Value**	**Design Variables**
child	**0**	1
	1	-1

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	1690.065	1682.940
SC	1695.245	1693.300
-2 Log L	1688.065	1678.940

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	9.1251	1	0.0025
Score	9.1469	1	0.0025
Wald	9.1160	1	0.0025

The LOGISTIC Procedure

Type 3 Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq
child	1	9.1160	0.0025

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	0.6365	0.0584	118.5931	<.0001
child	0	1	-0.1765	0.0584	9.1160	0.0025

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
child 0 vs 1	0.703	0.559	0.884

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	29.4	Somers' D	0.087
Percent Discordant	20.6	Gamma	0.175
Percent Tied	50.0	Tau-a	0.039
Pairs	388350	c	0.544