

Question 2

The LOGISTIC Procedure

Model Information	
Data Set	WORK.Q2
Response Variable (Events)	dead_j
Response Variable (Trials)	n_j
Model	binary probit
Optimization Technique	Fisher's scoring

Model Fit Statistics			
Criterion	Intercept Only	Intercept and Covariates	
		Log Likelihood	Full Log Likelihood
AIC	575.554	364.620	33.538
SC	579.597	372.705	41.623
-2 Log L	573.554	360.620	29.538

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	212.9338	1	<.0001
Score	179.9072	1	<.0001
Wald	148.6935	1	<.0001

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-9.7536	0.8122	144.2291	<.0001
dose_j	1	5.5907	0.4585	148.6935	<.0001

Estimated Covariance Matrix		
Parameter	Intercept	dose_j
Intercept	0.659598	-0.37076
dose_j	-0.37076	0.210205

Question 3**The LOGISTIC Procedure**

Model Information	
Data Set	WORK.Q3
Response Variable	Y
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Response Profile		
Ordered Value	Y	Total Frequency
1	1	2000
2	0	2000

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	5547.177	5253.638
SC	5553.471	5285.108
-2 Log L	5545.177	5243.638

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-2.4949	0.2777	80.7012	<.0001
AGE	1	0.0526	0.00534	97.1367	<.0001
Gender	1	-0.7021	0.0663	112.1191	<.0001
SNP	1	0.6940	0.4049	2.9379	0.0865
AGE*SNP	1	-0.00810	0.00786	1.0611	0.3030

Question 3**The LOGISTIC Procedure**

Partition for the Hosmer and Lemeshow Test					
Group	Total	Y = 1		Y = 0	
		Observed	Expected	Observed	Expected
1	403	114	105.99	289	297.01
2	386	126	133.61	260	252.39
3	395	147	156.28	248	238.72
4	404	190	179.74	214	224.26
5	408	180	197.61	228	210.39
6	407	214	212.13	193	194.87
7	386	229	215.59	157	170.41
8	413	247	250.93	166	162.07
9	392	263	259.27	129	132.73
10	406	290	288.86	116	117.14

Hosmer and Lemeshow Goodness-of-Fit Test		
Chi-Square	DF	Pr > ChiSq
8.7482		

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Model Information	
Data Set	WORK.Q3
Response Variable	Y
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Response Profile		
Ordered Value	Y	Total Frequency
1	1	2000
2	0	2000

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	5547.177	5269.031
SC	5553.471	5287.913
-2 Log L	5545.177	5263.031

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-2.1627	0.2027	113.8332	<.0001
AGE	1	0.0486	0.00390	154.6894	<.0001
Gender	1	-0.6970	0.0661	111.1944	<.0001

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TABLE IV

Chi-Square (χ^2) Distribution
Area to the Right of Critical Value

Degrees of Freedom	0.99	0.975	0.95	0.90	0.10	0.05	0.025	0.01
1	—	0.001	0.004	0.016	2.706	3.841	5.024	6.635
2	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210
3	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345
4	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277
5	0.554	0.831	1.145	1.610	9.236	11.071	12.833	15.086
6	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812
7	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475
8	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090
9	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666
10	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209
11	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725
12	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217
13	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688
14	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141
15	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578
16	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000
17	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409
18	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805
19	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191
20	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566
21	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932
22	9.542	10.982	12.338	14.042	30.813	33.924	36.781	40.289
23	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638
24	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980
25	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314
26	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642
27	12.879	14.573	16.151	18.114	36.741	40.113	43.194	46.963
28	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278
29	14.257	16.047	17.708	19.768	39.087	42.557	45.722	49.588
30	14.954	16.791	18.493	20.599	40.256	43.773	46.979	50.892