

Table 1: Upper Critical Values for Chi-square ( $\chi^2_{crit}$ )

df	$\alpha$			df	$\alpha$		
	0.10	0.05	0.01		0.10	0.05	0.01
1	2.706	3.841	6.635	51	64.295	68.669	77.386
2	4.605	5.991	9.210	52	65.422	69.832	78.616
3	6.251	7.815	11.345	53	66.548	70.993	79.843
4	7.779	9.488	13.277	54	67.673	72.153	81.069
5	9.236	11.070	15.086	55	68.796	73.311	82.292
6	10.645	12.592	16.812	56	69.919	74.468	83.513
7	12.017	14.067	18.475	57	71.040	75.624	84.733
8	13.362	15.507	20.090	58	72.160	76.778	85.950
9	14.684	16.919	21.666	59	73.279	77.931	87.166
10	15.987	18.307	23.209	60	74.397	79.082	88.379
11	17.275	19.675	24.725	61	75.514	80.232	89.591
12	18.549	21.026	26.217	62	76.630	81.381	90.802
13	19.812	22.362	27.688	63	77.745	82.529	92.010
14	21.064	23.685	29.141	64	78.860	83.675	93.217
15	22.307	24.996	30.578	65	79.973	84.821	94.422
16	23.542	26.296	32.000	66	81.085	85.965	95.626
17	24.769	27.587	33.409	67	82.197	87.108	96.828
18	25.989	28.869	34.805	68	83.308	88.250	98.028
19	27.204	30.144	36.191	69	84.418	89.391	99.228
20	28.412	31.410	37.566	70	85.527	90.531	100.425
21	29.615	32.671	38.932	71	86.635	91.670	101.621
22	30.813	33.924	40.289	72	87.743	92.808	102.816
23	32.007	35.172	41.638	73	88.850	93.945	104.010
24	33.196	36.415	42.980	74	89.956	95.081	105.202
25	34.382	37.652	44.314	75	91.061	96.217	106.393
26	35.563	38.885	45.642	76	92.166	97.351	107.583
27	36.741	40.113	46.963	77	93.270	98.484	108.771
28	37.916	41.337	48.278	78	94.374	99.617	109.958
29	39.087	42.557	49.588	79	95.476	100.749	111.144
30	40.256	43.773	50.892	80	96.578	101.879	112.329
31	41.422	44.985	52.191	81	97.680	103.010	113.512
32	42.585	46.194	53.486	82	98.780	104.139	114.695
33	43.745	47.400	54.776	83	99.880	105.267	115.876
34	44.903	48.602	56.061	84	100.980	106.395	117.057
35	46.059	49.802	57.342	85	102.079	107.522	118.236
36	47.212	50.998	58.619	86	103.177	108.648	119.414
37	48.363	52.192	59.893	87	104.275	109.773	120.591
38	49.513	53.384	61.162	88	105.372	110.898	121.767
39	50.660	54.572	62.428	89	106.469	112.022	122.942
40	51.805	55.758	63.691	90	107.565	113.145	124.116
41	52.949	56.942	64.950	91	108.661	114.268	125.289
42	54.090	58.124	66.206	92	109.756	115.390	126.462
43	55.230	59.304	67.459	93	110.850	116.511	127.633
44	56.369	60.481	68.710	94	111.944	117.632	128.803
45	57.505	61.656	69.957	95	113.038	118.752	129.973
46	58.641	62.830	71.201	96	114.131	119.871	131.141
47	59.774	64.001	72.443	97	115.223	120.990	132.309
48	60.907	65.171	73.683	98	116.315	122.108	133.476
49	62.038	66.339	74.919	99	117.407	123.225	134.642
50	63.167	67.505	76.154	100	118.498	124.342	135.807