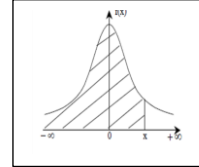


الجدول الاحصائية

الملحق رقم (3): الجداول الإحصائية الخاصة بالتوزيع الطبيعي الكلي

Table 1: Loi de distribution normale.

$$F(x) = P(x \leq x) = \int_{-\infty}^{+\infty} \frac{1}{\sqrt{2\pi\delta^2}} \cdot e^{-\frac{(x-U)^2}{2\delta^2}} d(x) \quad / -\infty < x < +\infty$$



X	0,00	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09
0,0	0,5000	0,5040	0,5080	0,5120	0,5160	0,5199	0,5239	0,5279	0,5319	0,5359
0,1	0,5398	0,5438	0,5478	0,5517	0,5557	0,5596	0,5636	0,5675	0,5714	0,5753
0,2	0,5793	0,5832	0,5871	0,5910	0,5948	0,5987	0,6026	0,6064	0,6103	0,6141
0,3	0,6179	0,6217	0,6255	0,6293	0,6331	0,6368	0,6406	0,6443	0,6480	0,6517
0,4	0,6554	0,6591	0,6628	0,6664	0,6700	0,6736	0,6772	0,6808	0,6844	0,6879
0,5	0,6915	0,6950	0,6985	0,7019	0,7054	0,7088	0,7123	0,7157	0,7190	0,7224
0,6	0,7257	0,7291	0,7324	0,7357	0,7389	0,7422	0,7454	0,7486	0,7517	0,7549
0,7	0,7580	0,7611	0,7642	0,7673	0,7704	0,7734	0,7764	0,7794	0,7823	0,7852
0,8	0,7881	0,7910	0,7939	0,7967	0,7995	0,8023	0,8051	0,8078	0,8106	0,8133
0,9	0,8159	0,8186	0,8212	0,8238	0,8264	0,8289	0,8315	0,8340	0,8365	0,8389
1,0	0,8413	0,8438	0,8461	0,8485	0,8508	0,8531	0,8554	0,8577	0,8599	0,8621
1,1	0,8643	0,8665	0,8686	0,8708	0,8729	0,8749	0,8770	0,8790	0,8810	0,8830
1,2	0,8849	0,8869	0,8888	0,8907	0,8925	0,8944	0,8962	0,8980	0,8997	0,9015
1,3	0,9032	0,9049	0,9066	0,9082	0,9099	0,9115	0,9131	0,9147	0,9162	0,9177
1,4	0,9192	0,9207	0,9222	0,9236	0,9251	0,9265	0,9279	0,9292	0,9306	0,9319
1,5	0,9332	0,9345	0,9357	0,9370	0,9382	0,9394	0,9406	0,9418	0,9429	0,9441
1,6	0,9452	0,9463	0,9474	0,9484	0,9495	0,9505	0,9515	0,9525	0,9535	0,9545
1,7	0,9554	0,9564	0,9573	0,9582	0,9591	0,9599	0,9608	0,9616	0,9625	0,9633
1,8	0,9641	0,9649	0,9656	0,9664	0,9671	0,9678	0,9686	0,9693	0,9699	0,9706
1,9	0,9713	0,9719	0,9726	0,9732	0,9738	0,9744	0,9750	0,9756	0,9761	0,9767
2,0	0,9772	0,9778	0,9783	0,9788	0,9793	0,9798	0,9803	0,9808	0,9812	0,9817
2,1	0,9821	0,9826	0,9830	0,9834	0,9838	0,9842	0,9846	0,9850	0,9854	0,9857
2,2	0,9861	0,9864	0,9868	0,9871	0,9875	0,9878	0,9881	0,9884	0,9887	0,9890
2,3	0,9893	0,9896	0,9898	0,9901	0,9904	0,9906	0,9909	0,9911	0,9913	0,9916
2,4	0,9918	0,9920	0,9922	0,9925	0,9927	0,9929	0,9931	0,9932	0,9934	0,9936
2,5	0,9938	0,9940	0,9941	0,9943	0,9945	0,9946	0,9948	0,9949	0,9951	0,9952
2,6	0,9953	0,9955	0,9956	0,9957	0,9959	0,9960	0,9961	0,9962	0,9963	0,9964
2,7	0,9965	0,9966	0,9967	0,9968	0,9969	0,9970	0,9971	0,9972	0,9973	0,9974
2,8	0,9974	0,9975	0,9976	0,9977	0,9977	0,9978	0,9979	0,9979	0,9980	0,9981
2,9	0,9981	0,9982	0,9982	0,9983	0,9984	0,9984	0,9985	0,9985	0,9986	0,9986
3,0	0,9987	0,9987	0,9987	0,9988	0,9988	0,9989	0,9989	0,9989	0,9990	0,9990
3,1	0,9990	0,9991	0,9991	0,9991	0,9992	0,9992	0,9992	0,9992	0,9993	0,9993
3,2	0,9993	0,9993	0,9994	0,9994	0,9994	0,9994	0,9994	0,9995	0,9995	0,9995
3,3	0,9995	0,9995	0,9995	0,9996	0,9996	0,9996	0,9996	0,9996	0,9996	0,9997
3,4	0,9997	0,9997	0,9997	0,9997	0,9997	0,9997	0,9997	0,9997	0,9997	0,9998
3,5	0,9998	0,9998	0,9998	0,9998	0,9998	0,9998	0,9998	0,9998	0,9998	0,9998

Table pour les grandes valeurs de x :

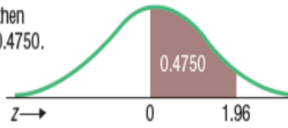
x	3	3,2	3,4	3,6	3,8	4	4,2	4,4	4,6	4,8
F(x)	0,99865003	0,99931280	0,99966302	0,99984085	0,99992763	0,99996831	0,99998665	0,99999458	0,99999789	0,99999921

الملحق رقم (3): الجداول الإحصائية الخاصة بالتوزيع الطبيعي الجزئي

Table 2: Loi de distribution Normal.

$$F(x) = P(x \leq x) = \int_{-\infty}^{+\infty} \frac{1}{\sqrt{2\pi\delta^2}} \cdot e^{-\frac{(x-U)^2}{2\delta^2}} d(x) \quad , \quad 0 < x < +\infty$$

Example:
If $z = 1.96$, then
 $P(0 \text{ to } z) = 0.4750$.

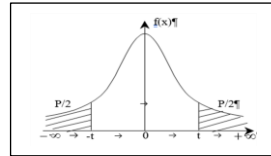


z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990

الملحق رقم (4): الجداول الإحصائية الخاصة بتوزيع ستيودنت

Table 1: Loi de Student

$$F(X) = \int_{-\infty}^x f(t) dt = \int_{-\infty}^x \frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{2\pi}\Gamma\left(\frac{\nu}{2}\right)} \cdot \left(1 + \frac{t^2}{\nu}\right)^{-\left(\frac{\nu+1}{2}\right)} dt$$



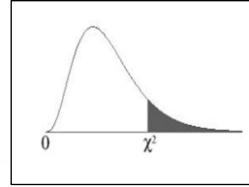
t Table

cum. prob one-tail two-tails	t _{.50}	t _{.25}	t _{.20}	t _{.15}	t _{.10}	t _{.05}	t _{.025}	t _{.01}	t _{.005}	t _{.001}	t _{.0005}
df											
1	0.000	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62
2	0.000	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.000	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.000	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.000	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	0.000	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	0.000	0.711	0.896	1.119	1.415	1.895	2.385	2.998	3.499	4.785	5.408
8	0.000	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	0.000	0.703	0.883	1.100	1.383	1.833	2.282	2.821	3.250	4.297	4.781
10	0.000	0.700	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	0.000	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	0.000	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	0.000	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	0.000	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	0.000	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	0.000	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	0.000	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	0.000	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	0.000	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	0.000	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	0.000	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	0.000	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	0.000	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485	3.768
24	0.000	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	0.000	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	0.000	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	0.000	0.684	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	0.000	0.683	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	0.000	0.683	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	0.000	0.683	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385	3.648
40	0.000	0.681	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.307	3.551
60	0.000	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.680	3.232	3.460
80	0.000	0.678	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195	3.416
100	0.000	0.677	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174	3.390
1000	0.000	0.675	0.842	1.037	1.282	1.646	1.962	2.330	2.581	3.098	3.300
Z	0.000	0.674	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090	3.291
	0%	50%	60%	70%	80%	90%	95%	98%	99%	99.8%	99.9%
	Confidence Level										

الملحق رقم (5): الجداول الإحصائية الخاصة بتوزيع كاي تربيع

Table 1: Loi de Chi-Square Distribution

$$F(x) = \int_0^x \frac{1}{\Gamma\left(\frac{k}{2}\right) \cdot 2^{\frac{k}{2}}} t^{\frac{k}{2}-1} e^{-\frac{t}{2}} dt$$



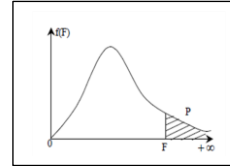
The shaded area is equal to α for $\chi^2 = \chi_{\alpha}^2$.

df	$\chi_{.995}^2$	$\chi_{.990}^2$	$\chi_{.975}^2$	$\chi_{.950}^2$	$\chi_{.900}^2$	$\chi_{.100}^2$	$\chi_{.050}^2$	$\chi_{.025}^2$	$\chi_{.010}^2$	$\chi_{.005}^2$
1	0.000	0.000	0.001	0.004	0.016	2.706	3.841	5.024	6.635	7.879
2	0.010	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210	10.597
3	0.072	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345	12.838
4	0.207	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277	14.860
5	0.412	0.554	0.831	1.145	1.610	9.236	11.070	12.833	15.086	16.750
6	0.676	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812	18.548
7	0.989	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475	20.278
8	1.344	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090	21.955
9	1.735	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666	23.589
10	2.156	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209	25.188
11	2.603	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725	26.757
12	3.074	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217	28.300
13	3.565	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688	29.819
14	4.075	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141	31.319
15	4.601	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578	32.801
16	5.142	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000	34.267
17	5.697	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409	35.718
18	6.265	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805	37.156
19	6.844	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191	38.582
20	7.434	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566	39.997
21	8.034	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932	41.401
22	8.643	9.542	10.982	12.338	14.041	30.813	33.924	36.781	40.289	42.796
23	9.260	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638	44.181
24	9.886	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980	45.559
25	10.520	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314	46.928
26	11.160	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642	48.290
27	11.808	12.879	14.573	16.151	18.114	36.741	40.113	43.195	46.963	49.645
28	12.461	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278	50.993
29	13.121	14.256	16.047	17.708	19.768	39.087	42.557	45.722	49.588	52.336
30	13.787	14.953	16.791	18.493	20.599	40.256	43.773	46.979	50.892	53.672
40	20.707	22.164	24.433	26.509	29.051	51.805	55.758	59.342	63.691	66.766
50	27.991	29.707	32.357	34.764	37.689	63.167	67.505	71.420	76.154	79.490
60	35.534	37.485	40.482	43.188	46.459	74.397	79.082	83.298	88.379	91.952
70	43.275	45.442	48.758	51.739	55.329	85.527	90.531	95.023	100.425	104.215
80	51.172	53.540	57.153	60.391	64.278	96.578	101.879	106.629	112.329	116.321
90	59.196	61.754	65.647	69.126	73.291	107.565	113.145	118.136	124.116	128.299
100	67.328	70.065	74.222	77.929	82.358	118.498	124.342	129.561	135.807	140.169

الملحق رقم (6): الجداول الإحصائية الخاصة بتوزيع فيشر

Table 1: Loi de Fisher-Snedecor

$$F(x) = \int_{-\infty}^x \frac{\Gamma\left(\frac{v_1 + v_2}{2}\right)}{\Gamma\left(\frac{v_1}{2}\right)\Gamma\left(\frac{v_2}{2}\right)} \cdot \frac{v_1}{v_1^2} \cdot \frac{v_2}{v_2^2} \cdot x^{\frac{v_1}{2}-1} (v_2 + v_1 x)^{-\frac{v_1+v_2}{2}} dx$$



Valeurs de F ayant 5% de chances d'être dépassées

$v_2 \backslash v_1$	1	2	3	4	5	6	8	10	12	18	24	30	50	60	120
1	161,446	199,499	215,707	224,583	230,160	233,988	238,884	241,882	243,905	247,324	249,052	250,096	251,774	252,196	253,254
2	18,513	19,000	19,164	19,247	19,296	19,329	19,371	19,396	19,412	19,440	19,454	19,463	19,476	19,479	19,487
3	10,128	9,552	9,277	9,117	9,013	8,941	8,845	8,785	8,745	8,675	8,638	8,617	8,581	8,572	8,549
4	7,709	6,944	6,591	6,388	6,256	6,163	6,041	5,964	5,912	5,821	5,774	5,746	5,699	5,688	5,658
5	6,608	5,786	5,409	5,192	5,050	4,950	4,818	4,735	4,678	4,579	4,527	4,496	4,444	4,431	4,398
6	5,987	5,143	4,757	4,534	4,387	4,284	4,147	4,060	4,000	3,896	3,841	3,808	3,754	3,740	3,705
7	5,591	4,737	4,347	4,120	3,972	3,866	3,726	3,637	3,575	3,467	3,410	3,376	3,319	3,304	3,267
8	5,318	4,459	4,066	3,838	3,688	3,581	3,438	3,347	3,284	3,173	3,115	3,079	3,020	3,005	2,967
9	5,117	4,256	3,863	3,633	3,482	3,374	3,230	3,137	3,073	2,960	2,900	2,864	2,803	2,787	2,748
10	4,965	4,103	3,708	3,478	3,326	3,217	3,072	2,978	2,913	2,798	2,737	2,700	2,637	2,621	2,580
11	4,844	3,982	3,587	3,357	3,204	3,095	2,948	2,854	2,788	2,671	2,609	2,570	2,507	2,490	2,448
12	4,747	3,885	3,490	3,259	3,106	2,996	2,849	2,753	2,687	2,568	2,505	2,466	2,401	2,384	2,341
13	4,667	3,806	3,411	3,179	3,025	2,915	2,767	2,671	2,604	2,484	2,420	2,380	2,314	2,297	2,252
14	4,600	3,739	3,344	3,112	2,958	2,848	2,699	2,602	2,534	2,413	2,349	2,308	2,241	2,223	2,178
15	4,543	3,682	3,287	3,056	2,901	2,790	2,641	2,544	2,475	2,353	2,288	2,247	2,178	2,160	2,114
16	4,494	3,634	3,239	3,007	2,852	2,741	2,591	2,494	2,425	2,302	2,235	2,194	2,124	2,106	2,059
17	4,451	3,592	3,197	2,965	2,810	2,699	2,548	2,450	2,381	2,257	2,190	2,148	2,077	2,058	2,011
18	4,414	3,555	3,160	2,928	2,773	2,661	2,510	2,412	2,342	2,217	2,150	2,107	2,035	2,017	1,968
19	4,381	3,522	3,127	2,895	2,740	2,628	2,477	2,378	2,308	2,182	2,114	2,071	1,999	1,980	1,930
20	4,351	3,493	3,098	2,866	2,711	2,599	2,447	2,348	2,278	2,151	2,082	2,039	1,966	1,946	1,896
21	4,325	3,467	3,072	2,840	2,685	2,573	2,420	2,321	2,250	2,123	2,054	2,010	1,936	1,916	1,866
22	4,301	3,443	3,049	2,817	2,661	2,549	2,397	2,297	2,226	2,098	2,028	1,984	1,909	1,889	1,838
23	4,279	3,422	3,028	2,796	2,640	2,528	2,375	2,275	2,204	2,075	2,005	1,961	1,885	1,865	1,813
24	4,260	3,403	3,009	2,776	2,621	2,508	2,355	2,255	2,183	2,054	1,984	1,939	1,863	1,842	1,790
25	4,242	3,385	2,991	2,759	2,603	2,490	2,337	2,236	2,165	2,035	1,964	1,919	1,842	1,822	1,768
26	4,225	3,369	2,975	2,743	2,587	2,474	2,321	2,220	2,148	2,018	1,946	1,901	1,823	1,803	1,749
27	4,210	3,354	2,960	2,728	2,572	2,459	2,305	2,204	2,132	2,002	1,930	1,884	1,806	1,785	1,731
28	4,196	3,340	2,947	2,714	2,558	2,445	2,291	2,190	2,118	1,987	1,915	1,869	1,790	1,769	1,714
29	4,183	3,328	2,934	2,701	2,545	2,432	2,278	2,177	2,104	1,973	1,901	1,854	1,775	1,754	1,698
30	4,171	3,316	2,922	2,690	2,534	2,421	2,266	2,165	2,092	1,960	1,887	1,841	1,761	1,740	1,683
31	4,160	3,305	2,911	2,679	2,523	2,409	2,255	2,153	2,080	1,948	1,875	1,828	1,748	1,726	1,670
32	4,149	3,295	2,901	2,668	2,512	2,399	2,244	2,142	2,070	1,937	1,864	1,817	1,736	1,714	1,657
33	4,139	3,285	2,892	2,659	2,503	2,389	2,233	2,133	2,060	1,926	1,853	1,806	1,724	1,702	1,645
34	4,130	3,276	2,883	2,650	2,494	2,380	2,225	2,123	2,050	1,917	1,843	1,795	1,713	1,691	1,633
35	4,121	3,267	2,874	2,641	2,485	2,372	2,217	2,114	2,041	1,907	1,833	1,786	1,703	1,681	1,623
40	4,085	3,232	2,839	2,606	2,449	2,336	2,180	2,077	2,003	1,868	1,793	1,744	1,660	1,637	1,577
50	4,034	3,183	2,790	2,557	2,400	2,286	2,130	2,026	1,952	1,814	1,737	1,687	1,599	1,576	1,511
80	3,960	3,111	2,719	2,486	2,329	2,214	2,056	1,951	1,875	1,734	1,654	1,602	1,508	1,482	1,411
100	3,936	3,087	2,696	2,463	2,305	2,191	2,032	1,927	1,850	1,708	1,627	1,573	1,477	1,450	1,376
120	3,920	3,072	2,680	2,447	2,290	2,175	2,016	1,910	1,834	1,690	1,608	1,554	1,457	1,429	1,352

الملحق رقم (6): الجداول الإحصائية الخاصة بتوزيع فيشر

Table 2: Loi de Fisher-Snedecor
Valeurs de F ayant 2,5% de chances d'être dépassées

$V_2 \backslash V_1$	1	2	3	4	5	6	8	10	12	18	24	30	50	60	120
1	647,793	799,482	864,151	899,599	921,835	937,114	956,643	968,634	976,725	990,345	997,272	1001,405	1008,098	1009,787	1014,036
2	38,506	39,000	39,166	39,248	39,298	39,331	39,373	39,398	39,415	39,442	39,457	39,465	39,478	39,481	39,489
3	17,443	16,044	15,439	15,101	14,885	14,735	14,540	14,419	14,337	14,196	14,124	14,081	14,010	13,992	13,947
4	12,218	10,649	9,979	9,604	9,364	9,197	8,980	8,844	8,751	8,592	8,511	8,461	8,381	8,360	8,309
5	10,007	8,434	7,764	7,388	7,146	6,978	6,757	6,619	6,525	6,362	6,278	6,227	6,144	6,123	6,069
6	8,813	7,260	6,599	6,227	5,988	5,820	5,600	5,461	5,366	5,202	5,117	5,065	4,980	4,959	4,904
7	8,073	6,542	5,890	5,523	5,285	5,119	4,899	4,761	4,666	4,501	4,415	4,362	4,276	4,254	4,199
8	7,571	6,059	5,416	5,053	4,817	4,652	4,433	4,295	4,200	4,034	3,947	3,894	3,807	3,784	3,728
9	7,209	5,715	5,078	4,718	4,484	4,320	4,102	3,964	3,868	3,701	3,614	3,560	3,472	3,449	3,392
10	6,937	5,456	4,826	4,468	4,236	4,072	3,855	3,717	3,621	3,453	3,365	3,311	3,221	3,198	3,140
11	6,724	5,256	4,630	4,275	4,044	3,881	3,664	3,526	3,430	3,261	3,173	3,118	3,027	3,004	2,944
12	6,554	5,096	4,474	4,121	3,891	3,728	3,512	3,374	3,277	3,108	3,019	2,963	2,871	2,848	2,787
13	6,414	4,965	4,347	3,996	3,767	3,604	3,388	3,250	3,153	2,983	2,893	2,837	2,744	2,720	2,659
14	6,298	4,857	4,242	3,892	3,663	3,501	3,285	3,147	3,050	2,879	2,789	2,732	2,638	2,614	2,552
15	6,200	4,765	4,153	3,804	3,576	3,415	3,199	3,060	2,963	2,792	2,701	2,644	2,549	2,524	2,461
16	6,115	4,687	4,077	3,729	3,502	3,341	3,125	2,986	2,889	2,717	2,625	2,568	2,472	2,447	2,383
17	6,042	4,619	4,011	3,665	3,438	3,277	3,061	2,922	2,825	2,652	2,560	2,502	2,405	2,380	2,315
18	5,978	4,560	3,954	3,608	3,382	3,221	3,005	2,866	2,769	2,596	2,503	2,445	2,347	2,321	2,256
19	5,922	4,508	3,903	3,559	3,333	3,172	2,956	2,817	2,720	2,546	2,452	2,394	2,295	2,270	2,203
20	5,871	4,461	3,859	3,515	3,289	3,128	2,913	2,774	2,676	2,501	2,408	2,349	2,249	2,223	2,156
21	5,827	4,420	3,819	3,475	3,250	3,090	2,874	2,735	2,637	2,462	2,368	2,308	2,208	2,182	2,114
22	5,786	4,383	3,783	3,440	3,215	3,055	2,839	2,700	2,602	2,426	2,332	2,272	2,171	2,145	2,076
23	5,750	4,349	3,750	3,408	3,183	3,023	2,808	2,668	2,570	2,394	2,299	2,239	2,137	2,111	2,041
24	5,717	4,319	3,721	3,379	3,155	2,995	2,779	2,640	2,541	2,365	2,269	2,209	2,107	2,080	2,010
25	5,686	4,291	3,694	3,353	3,129	2,969	2,753	2,613	2,515	2,338	2,242	2,182	2,079	2,052	1,981
26	5,659	4,265	3,670	3,329	3,105	2,945	2,729	2,590	2,491	2,314	2,217	2,157	2,053	2,026	1,954
27	5,633	4,242	3,647	3,307	3,083	2,923	2,707	2,568	2,469	2,291	2,195	2,133	2,029	2,002	1,930
28	5,610	4,221	3,626	3,286	3,063	2,903	2,687	2,547	2,448	2,270	2,174	2,112	2,007	1,980	1,907
29	5,588	4,201	3,607	3,267	3,044	2,884	2,669	2,529	2,430	2,251	2,154	2,092	1,987	1,959	1,886
30	5,568	4,182	3,589	3,250	3,026	2,867	2,651	2,511	2,412	2,233	2,136	2,074	1,968	1,940	1,866
31	5,549	4,165	3,573	3,234	3,010	2,851	2,635	2,495	2,396	2,217	2,119	2,057	1,950	1,922	1,848
32	5,531	4,149	3,557	3,218	2,995	2,836	2,620	2,480	2,381	2,201	2,103	2,041	1,934	1,905	1,831
33	5,515	4,134	3,543	3,204	2,981	2,822	2,606	2,466	2,366	2,187	2,088	2,026	1,918	1,890	1,815
34	5,499	4,120	3,529	3,191	2,968	2,808	2,593	2,453	2,353	2,173	2,075	2,012	1,904	1,875	1,799
35	5,485	4,106	3,517	3,179	2,956	2,796	2,581	2,440	2,341	2,160	2,062	1,999	1,890	1,861	1,785
40	5,424	4,051	3,463	3,126	2,904	2,744	2,529	2,388	2,288	2,107	2,007	1,943	1,832	1,803	1,724
50	5,340	3,975	3,390	3,054	2,833	2,674	2,458	2,317	2,216	2,033	1,931	1,866	1,752	1,721	1,639
80	5,218	3,864	3,284	2,950	2,730	2,571	2,355	2,213	2,111	1,925	1,820	1,752	1,632	1,599	1,508
100	5,179	3,828	3,250	2,917	2,696	2,537	2,321	2,179	2,077	1,890	1,784	1,715	1,592	1,558	1,463
120	5,152	3,805	3,227	2,894	2,674	2,515	2,299	2,157	2,055	1,866	1,760	1,690	1,565	1,530	1,433

الملحق رقم (6): الجداول الإحصائية الخاصة بتوزيع فيشر

Table 3: Loi de Fisher-Snedecor
Valeurs de F ayant 1% de chances d'être dépassées

$V_2 \backslash V_1$	1	2	3	4	5	6	8	10	12	18	24	30	50	60	120
1	4052,185	4999,340	5403,534	5624,257	5763,955	5858,950	5980,954	6055,925	6106,682	6191,432	6234,273	6260,350	6302,260	6312,970	6339,513
2	98,502	99,000	99,164	99,251	99,302	99,331	99,375	99,397	99,419	99,444	99,455	99,466	99,477	99,484	99,491
3	34,116	30,816	29,457	28,710	28,237	27,911	27,489	27,228	27,052	26,751	26,597	26,504	26,354	26,316	26,221
4	21,198	18,000	16,694	15,977	15,522	15,207	14,799	14,546	14,374	14,079	13,929	13,838	13,690	13,652	13,558
5	16,258	13,274	12,060	11,392	10,967	10,672	10,289	10,051	9,888	9,609	9,466	9,379	9,238	9,202	9,112
6	13,745	10,925	9,780	9,148	8,746	8,466	8,102	7,874	7,718	7,451	7,313	7,229	7,091	7,057	6,969
7	12,246	9,547	8,451	7,847	7,460	7,191	6,840	6,620	6,469	6,209	6,074	5,992	5,858	5,824	5,737
8	11,259	8,649	7,591	7,006	6,632	6,371	6,029	5,814	5,667	5,412	5,279	5,198	5,065	5,032	4,946
9	10,562	8,022	6,992	6,422	6,057	5,802	5,467	5,257	5,111	4,860	4,729	4,649	4,517	4,483	4,398
10	10,044	7,559	6,552	5,994	5,636	5,386	5,057	4,849	4,706	4,457	4,327	4,247	4,115	4,082	3,996
11	9,646	7,206	6,217	5,668	5,316	5,069	4,744	4,539	4,397	4,150	4,021	3,941	3,810	3,776	3,690
12	9,330	6,927	5,953	5,412	5,064	4,821	4,499	4,296	4,155	3,910	3,780	3,701	3,569	3,535	3,449
13	9,074	6,701	5,739	5,205	4,862	4,620	4,302	4,100	3,960	3,716	3,587	3,507	3,375	3,341	3,255
14	8,862	6,515	5,564	5,035	4,695	4,456	4,140	3,939	3,800	3,556	3,427	3,348	3,215	3,181	3,094
15	8,683	6,359	5,417	4,893	4,556	4,318	4,004	3,805	3,666	3,423	3,294	3,214	3,081	3,047	2,959
16	8,531	6,226	5,292	4,773	4,437	4,202	3,890	3,691	3,553	3,310	3,181	3,101	2,967	2,933	2,845
17	8,400	6,112	5,185	4,669	4,336	4,101	3,791	3,593	3,455	3,212	3,083	3,003	2,869	2,835	2,746
18	8,285	6,013	5,092	4,579	4,248	4,015	3,705	3,508	3,371	3,128	2,999	2,919	2,784	2,749	2,660
19	8,185	5,926	5,010	4,500	4,171	3,939	3,631	3,434	3,297	3,054	2,925	2,844	2,709	2,674	2,584
20	8,096	5,849	4,938	4,431	4,103	3,871	3,564	3,368	3,231	2,989	2,859	2,778	2,643	2,608	2,517
21	8,017	5,780	4,874	4,369	4,042	3,812	3,506	3,310	3,173	2,931	2,801	2,720	2,584	2,548	2,457
22	7,945	5,719	4,817	4,313	3,988	3,758	3,453	3,258	3,121	2,879	2,749	2,667	2,531	2,495	2,403
23	7,881	5,664	4,765	4,264	3,939	3,710	3,406	3,211	3,074	2,832	2,702	2,620	2,483	2,447	2,354
24	7,823	5,614	4,718	4,218	3,895	3,667	3,363	3,168	3,032	2,789	2,659	2,577	2,440	2,403	2,310
25	7,770	5,568	4,675	4,177	3,855	3,627	3,324	3,129	2,993	2,751	2,620	2,538	2,400	2,364	2,270
26	7,721	5,526	4,637	4,140	3,818	3,591	3,288	3,094	2,958	2,715	2,585	2,503	2,364	2,327	2,233
27	7,677	5,488	4,601	4,106	3,785	3,558	3,256	3,062	2,926	2,683	2,552	2,470	2,330	2,294	2,198
28	7,636	5,453	4,568	4,074	3,754	3,528	3,226	3,032	2,896	2,653	2,522	2,440	2,300	2,263	2,167
29	7,598	5,420	4,538	4,045	3,725	3,499	3,198	3,005	2,868	2,626	2,495	2,412	2,271	2,234	2,138
30	7,562	5,390	4,510	4,018	3,699	3,473	3,173	2,979	2,843	2,600	2,469	2,386	2,245	2,208	2,111
31	7,530	5,362	4,484	3,993	3,675	3,449	3,149	2,955	2,820	2,577	2,445	2,362	2,221	2,183	2,086
32	7,499	5,336	4,459	3,969	3,652	3,427	3,127	2,934	2,798	2,555	2,423	2,340	2,198	2,160	2,062
33	7,471	5,312	4,437	3,948	3,630	3,406	3,106	2,913	2,777	2,534	2,402	2,319	2,176	2,139	2,040
34	7,444	5,289	4,416	3,927	3,611	3,386	3,087	2,894	2,758	2,515	2,383	2,299	2,156	2,118	2,019
35	7,419	5,268	4,396	3,908	3,592	3,368	3,069	2,876	2,740	2,497	2,364	2,281	2,137	2,099	2,000
40	7,314	5,178	4,313	3,828	3,514	3,291	2,993	2,801	2,665	2,421	2,288	2,203	2,058	2,019	1,917
50	7,171	5,057	4,199	3,720	3,408	3,186	2,890	2,698	2,563	2,318	2,183	2,098	1,949	1,909	1,803
80	6,963	4,881	4,036	3,563	3,255	3,036	2,742	2,551	2,415	2,169	2,032	1,944	1,788	1,746	1,630
100	6,895	4,824	3,984	3,513	3,206	2,988	2,694	2,503	2,368	2,120	1,983	1,893	1,735	1,692	1,572
120	6,851	4,787	3,949	3,480	3,174	2,956	2,663	2,472	2,336	2,089	1,950	1,860	1,700	1,656	1,533

الملحق رقم (6): الجداول الإحصائية الخاصة بتوزيع فيشر

Table 4: Loi de Fisher-Snedecor
Valeurs de F ayant 0,5% de chances d'être dépassées

$V_2 \backslash V_1$	1	2	3	4	5	6	8	10	12	18	24	30	50	60	120
1	16212,463	19997,358	21614,134	22500,753	23055,822	23439,527	23923,814	24221,838	24426,728	24765,730	24937,093	25041,401	25212,765	25253,743	25358,051
2	198,503	199,012	199,158	199,245	199,303	199,332	199,376	199,390	199,419	199,449	199,449	199,478	199,478	199,478	199,492
3	55,552	49,800	47,468	46,195	45,391	44,838	44,125	43,685	43,387	42,881	42,623	42,466	42,211	42,150	41,990
4	31,332	26,284	24,260	23,154	22,456	21,975	21,352	20,967	20,705	20,258	20,030	19,892	19,667	19,611	19,469
5	22,785	18,314	16,530	15,556	14,939	14,513	13,961	13,618	13,385	12,985	12,780	12,656	12,454	12,402	12,274
6	18,635	14,544	12,917	12,028	11,464	11,073	10,566	10,250	10,034	9,664	9,474	9,358	9,170	9,122	9,001
7	16,235	12,404	10,883	10,050	9,522	9,155	8,678	8,380	8,176	7,826	7,645	7,534	7,354	7,309	7,193
8	14,688	11,043	9,597	8,805	8,302	7,952	7,496	7,211	7,015	6,678	6,503	6,396	6,222	6,177	6,065
9	13,614	10,107	8,717	7,956	7,471	7,134	6,693	6,417	6,227	5,899	5,729	5,625	5,454	5,410	5,300
10	12,827	9,427	8,081	7,343	6,872	6,545	6,116	5,847	5,661	5,340	5,173	5,071	4,902	4,859	4,750
11	12,226	8,912	7,600	6,881	6,422	6,102	5,682	5,418	5,236	4,921	4,756	4,654	4,488	4,445	4,337
12	11,754	8,510	7,226	6,521	6,071	5,757	5,345	5,085	4,906	4,595	4,431	4,331	4,165	4,123	4,015
13	11,374	8,186	6,926	6,233	5,791	5,482	5,076	4,820	4,643	4,334	4,173	4,073	3,908	3,866	3,758
14	11,060	7,922	6,680	5,998	5,562	5,257	4,857	4,603	4,428	4,122	3,961	3,862	3,697	3,655	3,547
15	10,798	7,701	6,476	5,803	5,372	5,071	4,674	4,424	4,250	3,946	3,786	3,687	3,523	3,480	3,372
16	10,576	7,514	6,303	5,638	5,212	4,913	4,521	4,272	4,099	3,797	3,638	3,539	3,375	3,332	3,224
17	10,384	7,354	6,156	5,497	5,075	4,779	4,389	4,142	3,971	3,670	3,511	3,412	3,248	3,206	3,097
18	10,218	7,215	6,028	5,375	4,956	4,663	4,276	4,030	3,860	3,560	3,402	3,303	3,139	3,096	2,987
19	10,073	7,093	5,916	5,268	4,853	4,561	4,177	3,933	3,763	3,464	3,306	3,208	3,043	3,000	2,891
20	9,944	6,987	5,818	5,174	4,762	4,472	4,090	3,847	3,678	3,380	3,222	3,123	2,959	2,916	2,806
21	9,829	6,891	5,730	5,091	4,681	4,393	4,013	3,771	3,602	3,305	3,147	3,049	2,884	2,841	2,730
22	9,727	6,806	5,652	5,017	4,609	4,322	3,944	3,703	3,535	3,239	3,081	2,982	2,817	2,774	2,663
23	9,635	6,730	5,582	4,950	4,544	4,259	3,882	3,642	3,474	3,179	3,021	2,922	2,756	2,713	2,602
24	9,551	6,661	5,519	4,890	4,486	4,202	3,826	3,587	3,420	3,125	2,967	2,868	2,702	2,658	2,546
25	9,475	6,598	5,462	4,835	4,433	4,150	3,776	3,537	3,370	3,075	2,918	2,819	2,652	2,609	2,496
26	9,406	6,541	5,409	4,785	4,384	4,103	3,730	3,492	3,325	3,031	2,873	2,774	2,607	2,563	2,450
27	9,342	6,489	5,361	4,740	4,340	4,059	3,687	3,450	3,284	2,990	2,832	2,733	2,565	2,522	2,408
28	9,284	6,440	5,317	4,698	4,300	4,020	3,649	3,412	3,246	2,952	2,794	2,695	2,527	2,483	2,369
29	9,230	6,396	5,276	4,659	4,262	3,983	3,613	3,376	3,211	2,917	2,759	2,660	2,492	2,448	2,333
30	9,180	6,355	5,239	4,623	4,228	3,949	3,580	3,344	3,179	2,885	2,727	2,628	2,459	2,415	2,300
31	9,133	6,316	5,204	4,590	4,195	3,918	3,549	3,314	3,149	2,855	2,697	2,598	2,429	2,385	2,269
32	9,090	6,281	5,172	4,559	4,166	3,889	3,521	3,286	3,121	2,828	2,670	2,570	2,401	2,356	2,240
33	9,049	6,248	5,141	4,531	4,138	3,861	3,495	3,260	3,095	2,802	2,644	2,544	2,374	2,330	2,213
34	9,012	6,217	5,113	4,504	4,112	3,836	3,470	3,235	3,071	2,778	2,620	2,520	2,350	2,305	2,188
35	8,976	6,188	5,086	4,479	4,088	3,812	3,447	3,212	3,048	2,755	2,597	2,497	2,327	2,282	2,164
40	8,828	6,066	4,976	4,374	3,986	3,713	3,350	3,117	2,953	2,661	2,502	2,401	2,230	2,184	2,064
50	8,626	5,902	4,826	4,232	3,849	3,579	3,219	2,988	2,825	2,533	2,373	2,272	2,097	2,050	1,925
80	8,335	5,665	4,611	4,028	3,652	3,387	3,032	2,803	2,641	2,349	2,188	2,084	1,903	1,854	1,720
100	8,241	5,589	4,542	3,963	3,589	3,325	2,972	2,744	2,583	2,290	2,128	2,024	1,840	1,790	1,652
120	8,179	5,539	4,497	3,921	3,548	3,285	2,933	2,705	2,544	2,251	2,089	1,984	1,798	1,747	1,606