

Difficulties in license at the Faculty of Sciences

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Abstract: Students in the license (3th academic year) complain if they fail, at the end of academic year, one, two or three courses specifically because, in this case, they must register the year following that for one, two or three courses and do not have the right to enroll in master1. We will clarify problems who reside in certain courses in the license and in the various specialties in the Faculty of Sciences of the Lebanese University to "Hadath" where the rate of failures being more or less high, specifying if there are significant differences between the scores of students of the same specialty but in the language of learning different (French or English).

Keywords: License - difficulties - nonparametric test -Faculty of Sciences - Lebanese University.

General introduction

In this study, the target population is composed of students in License to the Faculty of Sciences of the Lebanese University to "Hadath" and in all specialties [1]. The general framework in which this study is carried out allows you to:

- study the distribution of scores of students and report if there are outliers notes [2] by utilization of the "Box - Plot" [3] in each course and for any specialties.
- Calculate the percentages of students stranded in each of the courses, in all specialties to locate the courses which the failure rate will be the higher.
- see if there is a significant difference on the percentage of failures, in each of the specialties between those who make their studies in language "french" or "English", by applying of the Wilcoxon Rank Sum Test [4], then between the different specialties using the test of the median [5] as a test of "rank" [6].
- Check if the averages of the students, in the various specialties, come from the same population.
- Summarize in the conclusion, the remarkable points studied and the advice of professors and students concerned by the course in which the rate of failures being the most high.

List of variables

The list of courses for each of the specialties are represented in the following table:

Option	Number of variables (courses)	Name of the variables
Statistics	14	stat302, stat307, stat309, stat313, stat314, stat315, stat316, stat317, stat319, info300, math380, drho300, lang300, lang301.
Informatics	13	Info300, info302, info306, info315, info317, info318, info319, info321, info324, info327, lang300, lang301, drho300.
Mathematics	9	math300, math301, math302, math303, math304, math305, math306, math307, math308, lang300, drho300.
Physics	17	phys300, phys302, phys303, phys304, phys305, Phys306, phys321, phys324, phys326, phys329, Elec371, elec372, info370, info371, lang300, drho300
Electronics	14	elec300, elec301, elec302, elec303, elec304, elec306, elec323, elec324, elec325, elec327, elec336, info375, lang300, drho300.

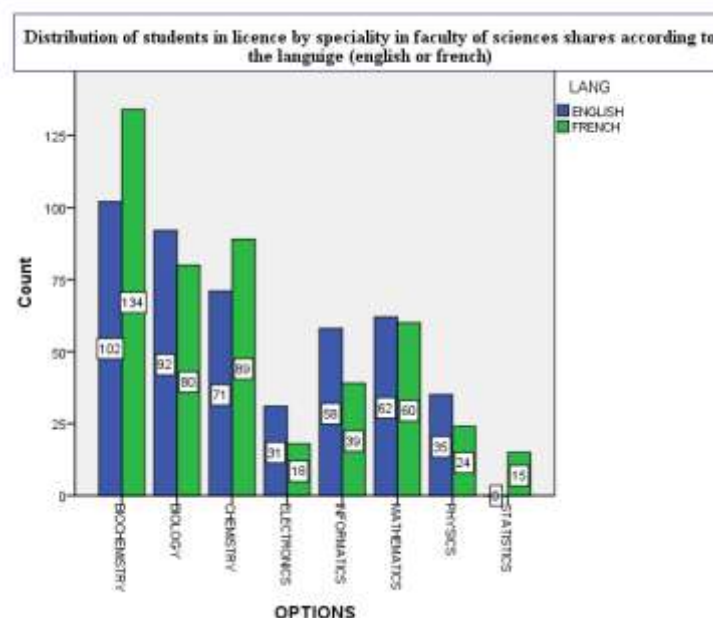
chemistry	22	chim302, chim323, chim325, chim327, chim330, chim331, chim332, chim333, chim334, chim335, chim337, chim339, chim341, chim342, chim343, chim344, chim345, chim366, chim367, chim368, lang300, drho300.
Biochemistry	21	bioc300, bioc301, bioc303, bioc330, bioc331, bioc332, bioc334, bioc340, bioc341, bioc350, bioc352, biol327, biol347, bioc380, biol381, biol384, biol394, chim331, chim345, lang300, drho300.
Biology	27	biol320, biol321, biol322, biol323, biol325, biol326, biol327, biol328, biol329, biol330, biol331, biol340, biol341, biol342, biol343, biol345, biol346, biol347, biol348, biol349, biol350, biol351, bioc380, bioc381, stat370, lang300, drho300.

Statistical Distributions: (We will use for graphs the SPSS software)

a statistical distribution can often be expressed in a clear manner in the form of a diagram, so that this process appears as a method of synthesis and study extremely effective.

Graphical and statistical tables

The chart below represents the number of students in the license for each of the specialties.

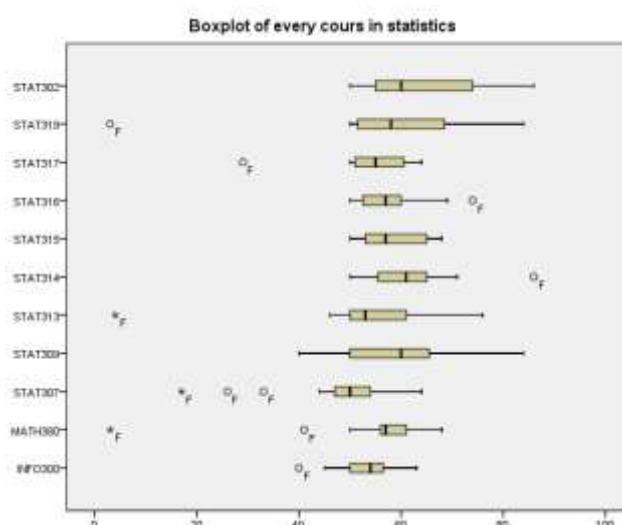


It is clear that in most specialties, the number of students in the English language exceeds that in the French language except in chemistry and biochemistry.

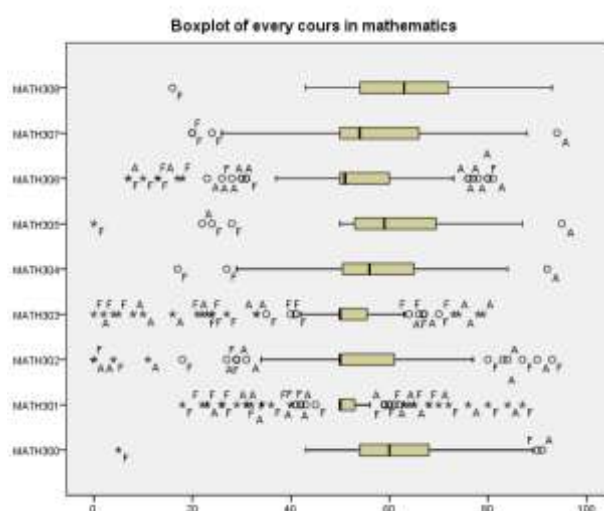
It was pointed out that in statistics there is that in the French language, because the students in the English language go to the Faculty of Sciences "Section II" to "Fanar".

Box-plot

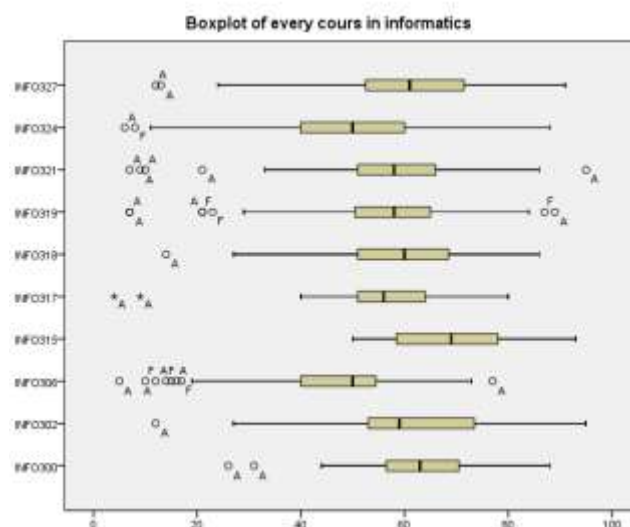
The box-plot [2] represents schematically the main characteristics of a numeric variable using the quartiles. It allows in particular to identify aberrant values and facilitates the Comparison of several distributions:



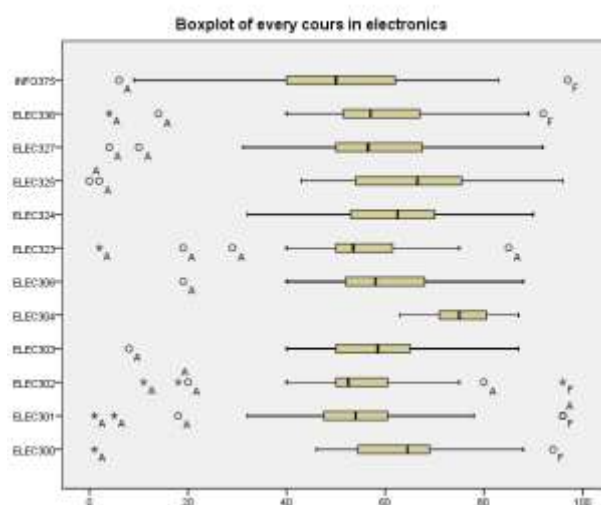
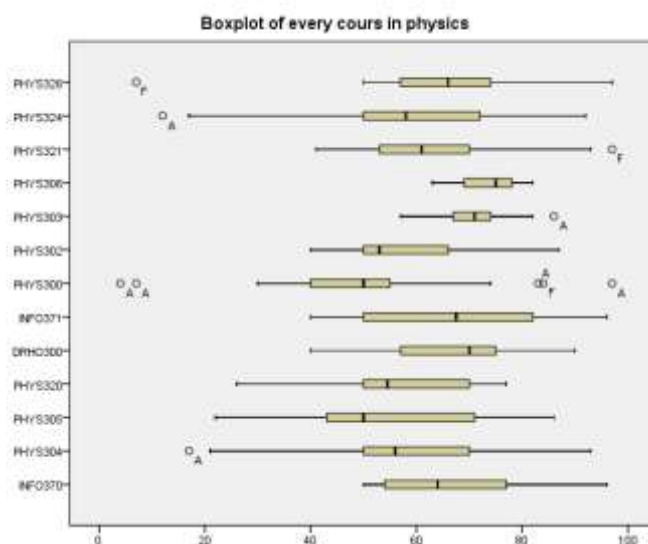
One sees well the distributions of the notes of students in license of statistics, the median, the quartiles and the aberrant notes of each course. Among the courses of statistics, the one who has the lowest median (50/100) "STAT307" with three aberrant notes on the left-hand side, and the one who has the highest median (61/100) "STAT314" with only one aberrant note on the right-hand side.



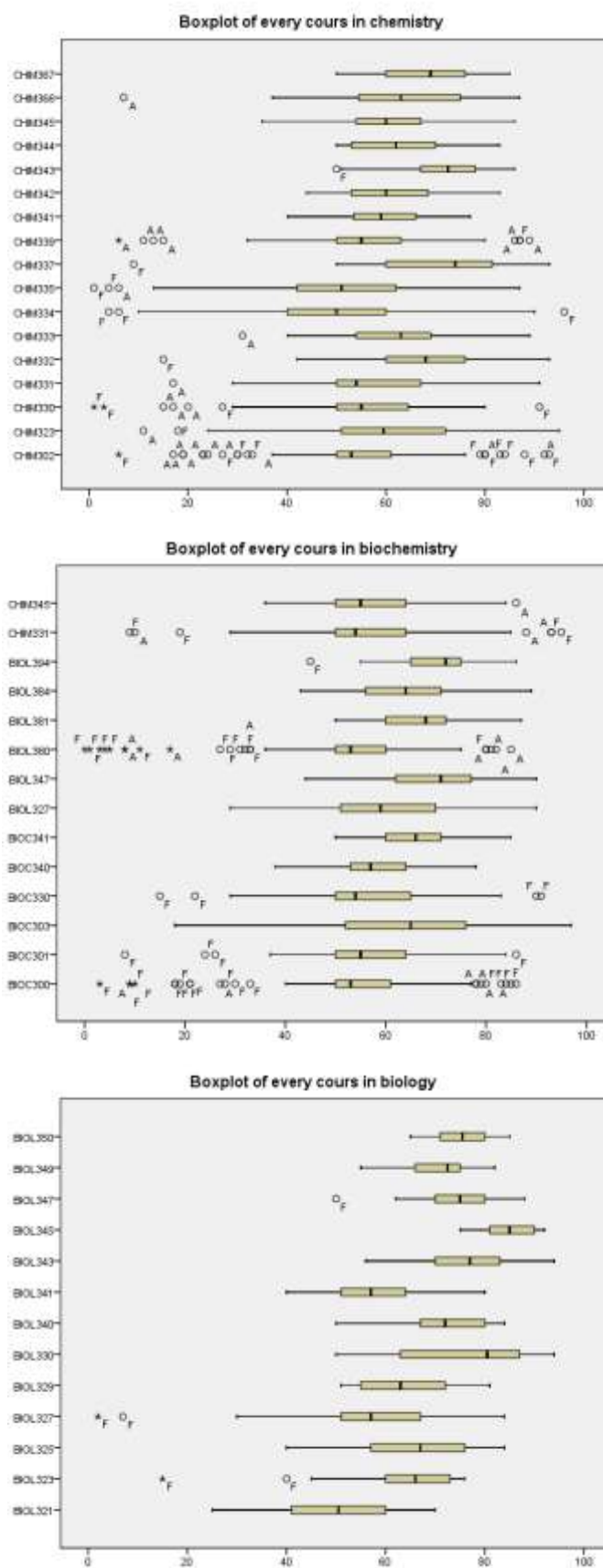
Among the courses in mathematics, one sees well, in the MATH301, math302, and Math303 (same median = 50/100) that the number of students failed is higher than in the rest of the course.



For the Course Info306, almost half of the students have a note below the median (49/100).



In physics, there is no great thing to point out, whereas in electronics there is some bad notes in most of the courses.



It should be noted that, in chemistry, for the course Chim330 Some aberrant notes very low, and that of CHIM302 we see aberrant notes of two sides. The same for the two courses Biol380 and bioc300 in biochemistry, but in biology The homogeneous aspect of notes in all the course, and the notes above 60/100 are dominant.

Percentage of failures of students in the license and in all specialties Statistics

Case Processing Summary						
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
EINFO300 * LANG	2	13.3%	13	86.7%	15	100.0%
EMATH380 * LANG	2	13.3%	13	86.7%	15	100.0%
ESTAT307 * LANG	4	26.7%	11	73.3%	15	100.0%
ESTAT309 * LANG	2	13.3%	13	86.7%	15	100.0%
ESTAT313 * LANG	2	13.3%	13	86.7%	15	100.0%
ESTAT314 * LANG	0	.0%	15	100.0%	15	100.0%
ESTAT315 * LANG	0	.0%	15	100.0%	15	100.0%
ESTAT316 * LANG	0	.0%	15	100.0%	15	100.0%
ESTAT317 * LANG	1	6.7%	14	93.3%	15	100.0%
ESTAT319 * LANG	1	6.7%	14	93.3%	15	100.0%
ESTAT302 * LANG	0	.0%	15	100.0%	15	100.0%

The largest percentage of students failed is 26.7% , for the course "STAT307".

Mathematics

Case Processing Summary						
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
EMATH300 * LANG	3	2.5%	119	97.5%	122	100.0%
EMATH301 * LANG	34	27.9%	88	72.1%	122	100.0%
EMATH302 * LANG	30	24.6%	92	75.4%	122	100.0%
EMATH303 * LANG	29	23.8%	93	76.2%	122	100.0%
EMATH304 * LANG	7	5.7%	115	94.3%	122	100.0%
EMATH305 * LANG	5	4.1%	117	95.9%	122	100.0%
EMATH306 * LANG	26	21.3%	96	78.7%	122	100.0%
EMATH307 * LANG	23	18.9%	99	81.1%	122	100.0%
EMATH308 * LANG	5	4.1%	117	95.9%	122	100.0%

The courses: Math301, math302, math303 and math306 explain the greater percentage of the students whose failures.
It was (62 "English" and 60 "French").

There is not a significant difference between the percentages of failures of the "English" and "French".

Sum									
LAN G	EMATH300	EMATH301	EMATH302	EMATH303	EMATH304	EMATH305	EMATH306	EMATH307	EMATH308
E	1.00	16.00	14.00	13.00		1.00	13.00	14.00	3.00
F	2.00	18.00	16.00	16.00	7.00	4.00	13.00	9.00	2.00
Total	3.00	34.00	30.00	29.00	7.00	5.00	26.00	23.00	5.00

Informatics

Case Processing Summary						
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
einfo300 * LANG	7	7.2%	90	92.8%	97	100.0%
einfo302 * LANG	12	12.4%	85	87.6%	97	100.0%
einfo306 * LANG	47	48.5%	50	51.5%	97	100.0%
einfo315 * LANG	1	1.0%	96	99.0%	97	100.0%
einfo317 * LANG	9	9.3%	88	90.7%	97	100.0%
einfo318 * LANG	11	11.3%	86	88.7%	97	100.0%
einfo319 * LANG	15	15.5%	82	84.5%	97	100.0%
einfo321 * LANG	9	9.3%	88	90.7%	97	100.0%
einfo324 * LANG	36	37.1%	61	62.9%	97	100.0%
einfo327 * LANG	8	8.2%	89	91.8%	97	100.0%

sum										
LANG	einfo300	einfo302	einfo306	einfo315	einfo317	einfo318	einfo319	einfo321	einfo324	einfo327
E	2.00	10.00	29.00		8.00	8.00	10.00	6.00	23.00	7.00
F	5.00	2.00	18.00	1.00	1.00	3.00	5.00	3.00	13.00	1.00
E %	3.4%	17%	50%		13.8%	13.8%	17%	10.3%	39.5%	12%
F %	12.8%	5%	46%	2.5%	2.5%	7.5%	12.8%	7.5%	33%	2.5%
Total	7.00	12.00	47.00	1.00	9.00	11.00	15.00	9.00	36.00	8.00

It is reported that it was: 58 "English" and 39 "French".

The percentages of students "English" stranded is significantly higher than students "French", and the percent of failures of students amounted to 48.5% in "info306" and 37.1% in "info324".

Physics

Case Processing Summary						
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
eelec372 * LANG	1	1.7%	58	98.3%	59	100.0%
einfo370 * LANG	3	5.1%	56	94.9%	59	100.0%
ephys329 * LANG	9	15.3%	50	84.7%	59	100.0%
ephys304 * LANG	7	11.9%	52	88.1%	59	100.0%
ephys305 * LANG	19	32.2%	40	67.8%	59	100.0%
ephys320 * LANG	7	11.9%	52	88.1%	59	100.0%
ephys300 * LANG	18	30.5%	41	69.5%	59	100.0%
ephys302 * LANG	4	6.8%	55	93.2%	59	100.0%
ephys303 * LANG	0	.0%	59	100.0%	59	100.0%
ephys306 * LANG	0	.0%	59	100.0%	59	100.0%
ephys321 * LANG	3	5.1%	56	94.9%	59	100.0%
ephys324 * LANG	8	13.6%	51	86.4%	59	100.0%
ephys326 * LANG	1	1.7%	58	98.3%	59	100.0%
eelec371 * LANG	3	5.1%	56	94.9%	59	100.0%
einfo371 * LANG	2	3.4%	57	96.6%	59	100.0%

	LANG	eelec372	einfo370	ephys329	ephys304	ephys305	ephys320	ephys300	ephys302	Ephys321	ephys324	ephys326	eelec371	einfo371
	E	1.00	2.00	4.00	4.00	10.00	2.00	12.00	1.00	2.00	6.00	1.00	2.00	
	F		1.00	5.00	3.00	9.00	5.00	6.00	3.00	1.00	2.00		1.00	2.00
	Total	1.00	3.00	9.00	7.00	19.00	7.00	18.00	4.00	3.00	8.00	1.00	3.00	2.00

It was 35 "English" and 24 "French"

It is in "Phys305" (32.2%) and "Phys300" (30.5%) than the percentage of failures of students being the highest. There is not a significant difference between the percentages of failures of the "English" and "French".

Electronics

Case Processing Summary							
	Cases						
	Included		Excluded		Total		
	N	Percent	N	Percent	N	Percent	
eelec300 * LANG	5	10.2%	44	89.8%	49	100.0%	
eelec301 * LANG	13	26.5%	36	73.5%	49	100.0%	
eelec302 * LANG	8	16.3%	41	83.7%	49	100.0%	
eelec303 * LANG	8	16.3%	41	83.7%	49	100.0%	
eelec304 * LANG	0	.0%	49	100.0%	49	100.0%	
eelec306 * LANG	7	14.3%	42	85.7%	49	100.0%	
eelec323 * LANG	12	24.5%	37	75.5%	49	100.0%	
eelec324 * LANG	5	10.2%	44	89.8%	49	100.0%	
eelec325 * LANG	6	12.2%	43	87.8%	49	100.0%	
eelec327 * LANG	8	16.3%	41	83.7%	49	100.0%	
eelec336 * LANG	8	16.3%	41	83.7%	49	100.0%	
einfo357 * LANG	22	44.9%	27	55.1%	49	100.0%	
Sum							
LANG	eelec300	eelec301	eelec302	eelec303	eelec306	eelec323	eelec324
E	5.00	10.00	7.00	3.00	6.00	8.00	2.00
F		3.00	1.00	5.00	1.00	4.00	3.00
Total	5.00	13.00	8.00	8.00	7.00	12.00	5.00
Sum							
LANG	eelec325	eelec327	eelec336	einfo357			
E	5.00	6.00	7.00	18.00			
F	1.00	2.00	1.00	4.00			
Total	6.00	8.00	8.00	22.00			

44.9% of students failed for the course "Info 357" and 26.5% for "Elec301" It was 31 "English" and 18 "French". The percentages of students "English" stranded is significantly higher than students "French".

Chemistry

Case Processing Summary						
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
echim327 * LANG	2	1.3%	158	98.8%	160	100.0%
echim368 * LANG	6	3.8%	154	96.3%	160	100.0%
echim302 * LANG	39	24.4%	121	75.6%	160	100.0%
echim323 * LANG	22	13.8%	138	86.3%	160	100.0%
echim325 * LANG	0	.0%	160	100.0%	160	100.0%
echim330 * LANG	39	24.4%	121	75.6%	160	100.0%
echim331 * LANG	33	20.6%	127	79.4%	160	100.0%
echim332 * LANG	5	3.1%	155	96.9%	160	100.0%
echim333 * LANG	12	7.5%	148	92.5%	160	100.0%
echim334 * LANG	59	36.9%	101	63.1%	160	100.0%
echim335 * LANG	51	31.9%	109	68.1%	160	100.0%
echim337 * LANG	3	1.9%	157	98.1%	160	100.0%

echim339 * LANG	32	20.0%	128	80.0%	160	100.0%
echim341 * LANG	6	3.8%	154	96.3%	160	100.0%
echim342 * LANG	7	4.4%	153	95.6%	160	100.0%
echim343 * LANG	0	.0%	160	100.0%	160	100.0%
echim344 * LANG	1	.6%	159	99.4%	160	100.0%
echim345 * LANG	6	3.8%	154	96.3%	160	100.0%
echim366 * LANG	20	12.5%	140	87.5%	160	100.0%
echim367 * LANG	2	1.3%	158	98.8%	160	100.0%

36.9% of failures of students for the course "chim334" and a little less for courses "chim302" and "chim330" (24.4%) and 31.9% failure for "chim335".

Sum							
LANG	echim327	echim368	echim302	echim323	echim330	echim331	
E		2.00	21.00	9.00	19.00	13.00	
F	2.00	4.00	18.00	13.00	20.00	20.00	
Total	2.00	6.00	39.00	22.00	39.00	33.00	
LANG	echim332	echim333	echim334	echim335	echim337	echim339	echim341
E	2.00	6.00	29.00	26.00	1.00	21.00	3.00
F	3.00	6.00	30.00	25.00	2.00	11.00	3.00
Total	5.00	12.00	59.00	51.00	3.00	32.00	6.00
Sum							
LANG	echim342	echim344	echim345	echim366	echim367		
E	3.00	1.00	2.00	14.00	2.00		
F	4.00		4.00	6.00			
Total	7.00	1.00	6.00	20.00	2.00		

36.9% of the failures of students for the course "Chim334" and a little less for courses "Chim302" and "Chim330" (24.4%) and 31.9% of failure for "Chim335".

It was 71 "English" and 89 "French". As regards the failures, there is no significant difference between the students "French" and those "English".

Biochemistry

Case Processing Summary						
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
ebioc334 * LANG	15	6.4%	221	93.6%	236	100.0%
ebioc300 * LANG	58	24.6%	178	75.4%	236	100.0%
ebioc301 * LANG	31	13.1%	205	86.9%	236	100.0%
ebioc303 * LANG	31	13.1%	205	86.9%	236	100.0%
ebioc330 * LANG	43	18.2%	193	81.8%	236	100.0%
ebioc331 * LANG	9	3.8%	227	96.2%	236	100.0%
ebioc340 * LANG	4	1.7%	232	98.3%	236	100.0%
ebioc341 * LANG	1	.4%	235	99.6%	236	100.0%
ebioc350 * LANG	0	.0%	236	100.0%	236	100.0%
ebioc327 * LANG	30	12.7%	206	87.3%	236	100.0%
ebioc347 * LANG	2	.8%	234	99.2%	236	100.0%
ebioc380 * LANG	57	24.2%	179	75.8%	236	100.0%
ebioc381 * LANG	1	.4%	235	99.6%	236	100.0%
ebioc384 * LANG	9	3.8%	227	96.2%	236	100.0%
ebioc394 * LANG	1	.4%	235	99.6%	236	100.0%
echim331 * LANG	35	14.8%	201	85.2%	236	100.0%
echim345 * LANG	9	3.8%	227	96.2%	236	100.0%

In biochemistry, the courses "Organic c300" (24.6% of failures) and "biol 380" (24.2% failure). 102 "English" and 134 "French".

In general, the percentage of failures among students "French" and significantly higher than those of "English" and almost in all courses.

In biochemistry, the courses "bioc300" (the percentage of failures is 24.6%) and "biol380" (the percentage of failures is 24.6%). It was 102 "English" and 134 "French". In general, the percentages of failures among students "French" is significantly higher than those of "English" and in almost all of the courses.

IV-8) Biology:

Case Processing Summary

	Cases							
	Included		Excluded		Total			
	N	Percent	N	Percent	N	Percent		
ebiol328	4	2.3%	168	97.7%	172	100.0%		
ebiol348	1	.6%	171	99.4%	172	100.0%		
ebiol322	0	.0%	172	100.0%	172	100.0%		
ebiol342	0	.0%	172	100.0%	172	100.0%		
ebiol326	1	.6%	171	99.4%	172	100.0%		
ebiol346	0	.0%	172	100.0%	172	100.0%		
ebiol331	4	2.3%	168	97.7%	172	100.0%		
ebiol351	0	.0%	172	100.0%	172	100.0%		
ebiol320	9	5.2%	163	94.8%	172	100.0%		
ebiol321	63	36.6%	109	63.4%	172	100.0%		
ebiol323	14	8.1%	158	91.9%	172	100.0%		
ebiol325	9	5.2%	163	94.8%	172	100.0%		
ebiol327	51	29.7%	121	70.3%	172	100.0%		
ebiol329	10	5.8%	162	94.2%	172	100.0%		
ebiol330	1	.6%	171	99.4%	172	100.0%		
ebiol340	0	.0%	172	100.0%	172	100.0%		
ebiol341	22	12.8%	150	87.2%	172	100.0%		
ebiol343	0	.0%	172	100.0%	172	100.0%		
ebiol345	2	1.2%	170	98.8%	172	100.0%		
ebiol347	0	.0%	172	100.0%	172	100.0%		
ebiol349	1	.6%	171	99.4%	172	100.0%		
ebiol350	0	.0%	172	100.0%	172	100.0%		
ebioc380	33	19.2%	139	80.8%	172	100.0%		
ebioc381	1	.6%	171	99.4%	172	100.0%		
estat370	15	8.7%	157	91.3%	172	100.0%		

LANG	ebiol328	ebiol348	ebiol326	ebiol331	ebiol320	ebiol321	ebiol323	ebiol325
E	2.00			4.00	7.00	35.00	4.00	4.00
F	2.00	1.00	1.00		2.00	28.00	10.00	5.00
Total	4.00	1.00	1.00	4.00	9.00	63.00	14.00	9.00

Sum									
LANG	ebiol327	ebiol329	ebiol330	ebiol341	ebiol345	ebiol349	ebioc380	ebioc381	estat370
E	27.00	9.00	1.00	8.00	2.00	1.00	11.00	1.00	11.00
F	24.00	1.00		14.00			22.00		4.00
Total	51.00	10.00	1.00	22.00	2.00	1.00	33.00	1.00	15.00

In biology, the course "Biol321" (36.6% of failures) and "Biol327" (29.7% of failures).

There is no significant difference between the percentages of students "French" and "English".

Recapitulative table of percentages of failures ($\geq 20\%$) of students for courses in different specialties.

Specialities	effectif	Cours	Pourcent d'échec %
Statistics	15	Stat307	26.7
Mathematics	122	Math301	27.9
		Math302	24.6
		Math303	23.8
		Math306	21.3
Informatics	97	Info306	48.5
		Info324	37.1
Physics	59	Phys300	30.5
		Phys305	32.2
Electronics	49	Elec301	26.5
		Elec323	24.5
		Info357	44.9
Chemistry	160	Chim302	24.4
		Chim330	24.4
		Chim331	20.6
		Chim334	36.9
		Chim335	31.9
		Chim339	20
Biochemistry	236	Bioc300	24.6
		Biol380	24.2
Biology	172	Biol321	36.6
		Biol327	29.7

The greatest percentages of failures are in "info306" (48.5%) then "Info357" (44.9) and then in "info324"(37.1). In Informatics, the two proportions of failures in the (Info306 and Info324) are remarkable compared to other courses.

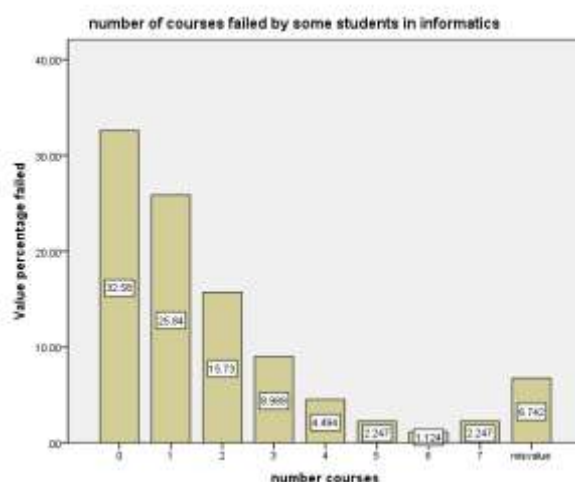
The same in biology and physics.

Number of the courses failed by a percentage of students:

Informatics:

ncouratparetu					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	29	32.6	34.9	34.9
	1.00	23	25.8	27.7	62.7
	2.00	14	15.7	16.9	79.5
	3.00	8	9.0	9.6	89.2
	4.00	4	4.5	4.8	94.0
	5.00	2	2.2	2.4	96.4
	6.00	1	1.1	1.2	97.6
	7.00	2	2.2	2.4	100.0
	Total	83	93.3	100.0	
Missing	System	6	6.7		
Total		89	100.0		

In the table above and for all the specialty later, we see at the bottom of each table a percentage for the "Missing System" which concerns each and every student who is not presented to the examination of such a course. So if you excluded the percentage of "Missing System" the remains of the values of the column "Percent" will no longer be percentages (32.6%) but will be as $32.6/(100-6.7)$



Therefore, 25.84% of students have failed by a single course. What makes the following year we will have 25 students in specialty "informatics" will register simply by a single course throughout the academic year. In the same way, 15 students will register for two courses, and so on.

-the stranded are shared between "French = F" and "English = E" with the same proportions.

* Wilcoxon test(Informatics):

For students of informatics, let us see if there is a significant difference between the averages of course between "French" and "English" by application of the Wilcoxon rank test.

Mean										
LANG	INFO300	INFO302	INFO306	INFO315	INFO317	INFO318	INFO319	INFO321	INFO324	INFO327
E	65.33	57.74	43.79	69.71	54.57	59.34	53.84	56.89	46.51	59.59
F	58.54	65.00	42.73	64.05	57.61	57.97	55.47	56.24	47.53	64.27

Wilcoxon Signed Ranks Test

Test Statistics ^b	
	fra - ang
Z	-.306 ^a
Asymp. Sig. (2-tailed)	.759
a. Based on negative ranks.	
b. Wilcoxon Signed Ranks Test	

As "Asymp. Sig." = 0.759 being superior to the risky $\alpha = 0.05$ then we accept the assumption of the identity of these two samples. As a result there is no significant difference between the averages of course in computer between "English" and "French".

Same result in mathematics, physics, electronics and chemistry.

*Wilcoxon test (Biochemistry):

For students of biochemistry, let us see if there is a significant difference between the averages of course between "French" and "English" by application of the Wilcoxon rank test.

eport			
BIOL3	72.62	71.92	72.29
BIOL3	60.47	58.30	59.40
BIOL3	72.74	66.47	69.16
BIOL3	71.88	74.26	73.25
BIOL3	58.00	57.50	57.71
BIOL3	57.67	55.97	56.71
BIOL3	70.31	70.21	70.25
BIOL3	66.61	61.79	63.84
BIOL3	66.94	65.49	66.10
BIOL3	52.18	48.81	50.25
BIOL3	70.72	67.94	69.13
BIOL3	61.17	57.05	58.82
BIOL3	67.75	67.31	67.48
BIOL3	65.80	64.27	64.93
BIOL3	61.27	57.14	58.92
BIOL3	64.02	63.22	63.54
BIOL3	54.81	52.18	53.21
BIOL3	68.13	57.65	62.17
BIOL3	56.58	54.02	55.15
BIOL3	52.36	50.59	51.38
BIOL3	59.65	53.88	56.42
BIOL3	1.00	2.00	Total

BIOL327	BIOL347	BIOL380	BIOL381	BIOL384	BIOL394	CHIM331	CHIM345	DRHO300
61.17	70.72	52.18	66.94	66.61	70.31	57.67	58.00	71.88
57.05	67.94	48.81	65.49	61.79	70.21	55.97	57.50	74.26
58.82	69.13	50.25	66.10	63.84	70.25	56.71	57.71	73.25

LANG300	BIOL332	BIOL352
72.74	60.47	72.62
66.47	58.30	71.92
69.16	59.40	72.29

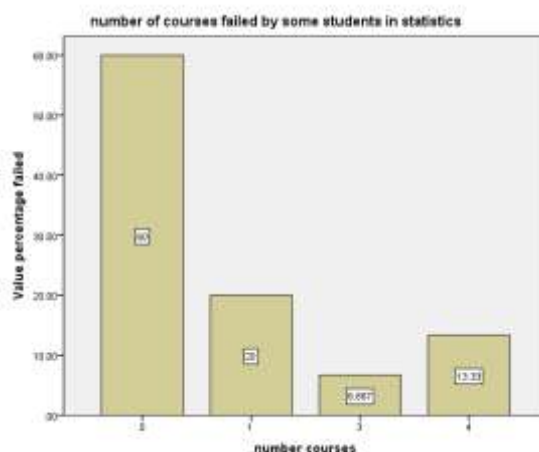
Wilcoxon Signed Ranks Test

Test Statistics ^b	
	fmeans - amean
Z	-3.912 ^a
Asymp. Sig. (2-tailed)	.000
a. Based on positive ranks.	
b. Wilcoxon Signed Ranks Test	

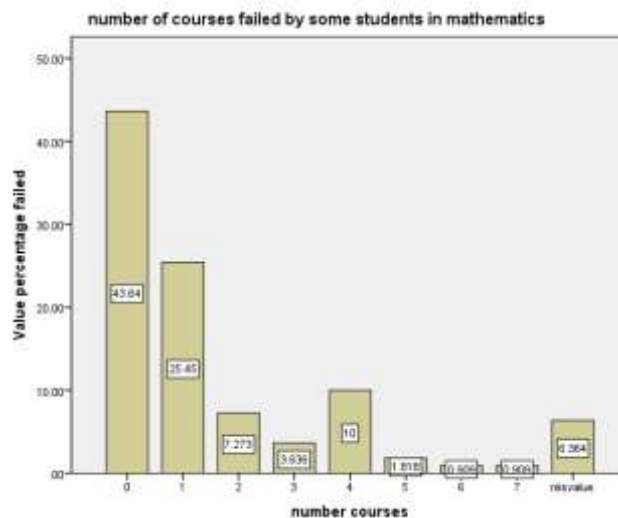
As "Asymp. Sig" = 0.000 being less than the risk $\alpha = 0.05$ then we reject the hypothesis of identity of these two samples. As a result there is a significant difference between the averages of course in biochemistry between "English" and French ".

Same result in biology.

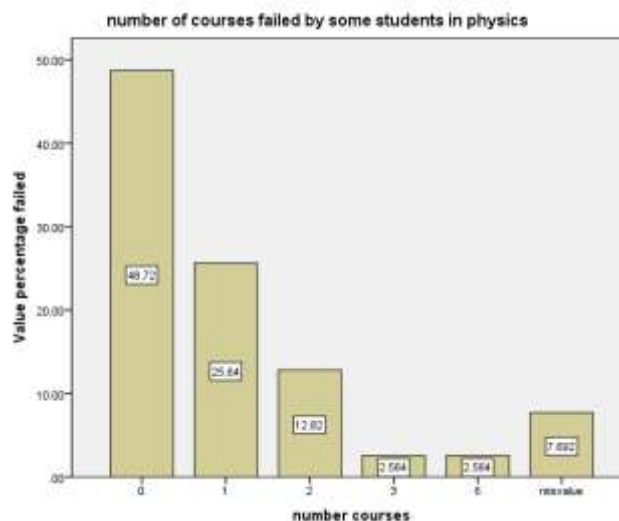
Statistics



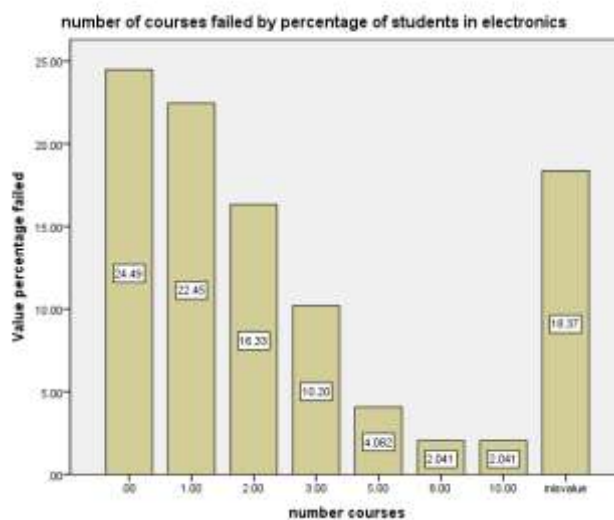
Mathematics



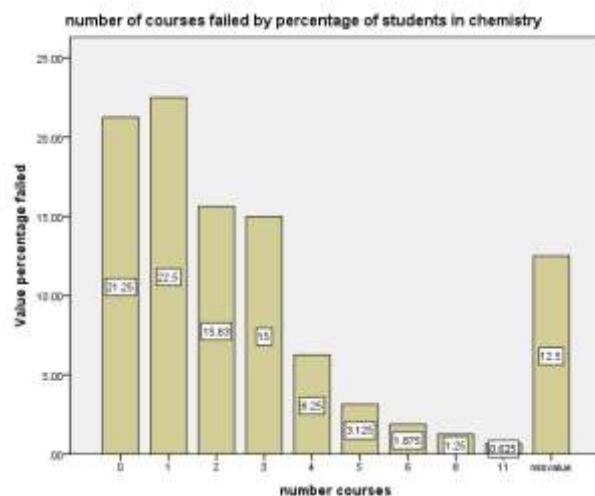
Physics:



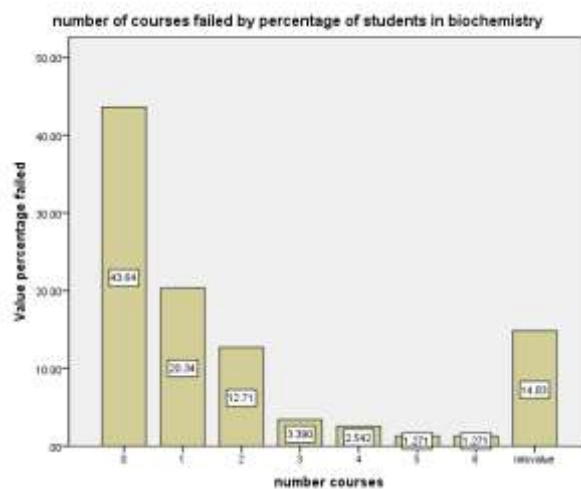
Electronics:



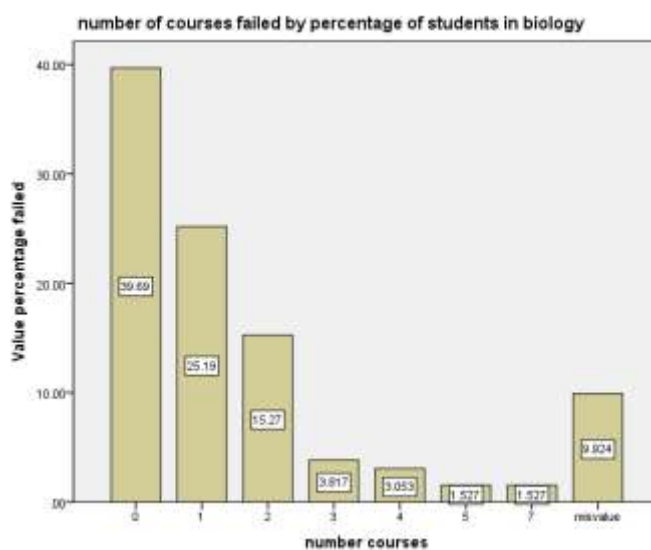
Chemistry:



Biochemistry:



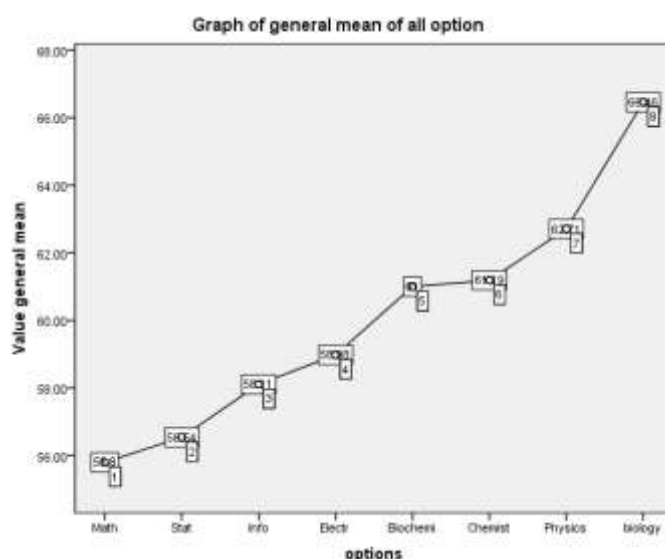
Biology



These graphs represent the percentages of successes [(0): failed by 0 course] then those are rates by a single course (1), and so on until the last column (misvalue) which represents the percentage of students who are not be presented to the review at least of any of the courses. The stranded students by a single courses are in proportion that are worth of 20.34%(Biochemistry) up to 25.64% (Physics).

Graph of general averages of all specialties:

specialities	Math	Stat	Info	Eléctr	Biochim	Chim	Phys	Biolog
means	55.80	56.54	58.11	58.98	61.00	61.19	62.71	66.46



It is clear that the averages in all specialties are worth by increasing order, of the "math" (55.80) until the biology (66.46). The high average in biology, physics, chemistry and biochemistry will be justified by the notes of manipulations in the laboratory.

Comparison between the averages of the students "English" and "French" for each of the specialties:

To find out if there is no significant difference between the averages of the students in a same specialty, but shared in two groups (1 = teaching in English; and 2 = teaching in French). In other term, if the averages of students ("French" or "English") come from the same population, by using of the test of the median.

1.Informatics:

Test Statistics^a

	moycal
N	83
Median	59.2000
Chi-Square	.008
Df	1
Asymp. Sig.	.931

a. Grouping Variable: lang

2.Mathematics:

Test Statistics^a

	moycal
N	103
Median	56.0000
Chi-Square	4.312
Df	1
Asymp. Sig.	.038

a. Grouping Variable: lang

As indicated in the first table above, $\text{Asymp. Sig} = 0.931 > \alpha = 0.05$ then it accepts the null hypothesis of the identity of these two samples of averages (English and French).

In the second table, there is $0.038 < 0.05$ so it rejects the null hypothesis of the identity of these two samples and there is a significant difference between the two samples of the averages of students in mathematical license shared according to their languages of learning (English or French).

3. Physics:

Test Statistics ^a	
	moycal
N	52
Median	61.5909
Chi-Square	.080
Df	1
Asymp. Sig.	.777

a. Grouping Variable: lang

4. Electronics:

Test Statistics ^a	
	moycal
N	40
Median	59.1250
Chi-Square	1.026
df	1
Asymp. Sig.	.311

a. Grouping Variable: lang

Similarly, it accepts the null hypothesis of the identity of these two samples of averages in physical license (English and French).

The same in Electronics. the average in both groups come from the same population.

5)Chemistry:

Test Statistics ^a	
	moycal
N	75
Median	59.8333
Chi-Square	1.602
df	1
Asymp. Sig.	.206

a. Grouping Variable: lang

6.Biochemistry:

Test Statistics ^a	
	meancal
N	141
Median	60.1429
Chi-Square	3.868
df	1
Asymp. Sig.	.049

a. Grouping Variable: lang

The average of these two groups come from the same population in Chemistry.. For the two groups (English and French) in biochemistry, it rejects the hypothesis of identity of the averages. And by follows there is a significant difference between the averages of these two groups.

7. Biology:

Test Statistics ^a	
	meancal
N	118
Median	67.2143
Chi-Square	4.145
Df	1
Asymp. Sig.	.042

a. Grouping Variable: lang

Similarly, it rejects the hypothesis of the identity of the two averages. And by follows, there is a significant difference between the means of these two groups.

IX) Test of the median for the eight specialities taken differently:

1) Info, Math and Statistics:

Test Statistics ^a	
	Moycal
N	92
Median	60.5000
Chi-Square	1.592
Df	1
Asymp. Sig.	.207

a. Grouping Variable: specialty

2) Physics and Electronics:

Test Statistics ^b	
	Moycal
N	202
Median	57.0500
Chi-Square	3.431 ^a
df	2
Asymp. Sig.	.180

b. Grouping Variable: specialty:
specialite

3) Chemistry, Biochem, Biol

Test Statistics ^b	
	Moycal
N	332
Median	62.2738
Chi-Square	47.549 ^a
df	2
Asymp. Sig.	.000

Test Statistics^b

	Moycal
N	332
Median	62.2738
Chi-Square	47.549 ^a
df	2
Asymp. Sig.	.000

b. Grouping Variable: speciality

4) Phys, Elect, Chem, Biochem

Test Statistics^b

	Moycal
N	306
Median	60.1169
Chi-Square	2.376 ^a
df	3
Asymp. Sig.	.498

b. Grouping Variable:specialty

5) Physics, Electronics, Chemistry , Biochemistry and Biology:

Test Statistics^b

	Meancal
N	424
Median	61.9643
Chi-Square	47.532 ^a
df	4
Asymp. Sig.	.000

b. Grouping Variable: specialty

6) Informatics, Mathematics, Statistics, Physics, Electronics, Chemistry , Biochemistry and Biology:

Frequencies

	specialities							
	Info	Math	Stat	Physique	Electronique	Chimie	Biochimie	Biologie
moycal > Median	35	28	2	30	17	35	71	95
<= Median	49	75	13	22	23	39	69	23

Test Statistics^b

	Meancal
N	626
Median	60.1056
Chi-Square	78.154 ^a
df	7
Asymp. Sig.	.000

b. Grouping Variable: specialite

RESULT:

- Informatics, Mathematics and statistics are identical, even for physics and electronics, but contrary to the chemistry, biochemistry and biology that are not identical.
- Informatics, Statistics, mathematics and physics are not identical.
- Physics Electronics, chemistry and biochemistry are identical.
- Physics Electronics, chemistry, biochemistry and biology are not identical
- Informatics, Statistics, mathematics, physics, electronics, chemistry, biochemistry and biology are not identical.

CONCLUSION:

- The number of students (license) in the English language exceeds that in the French language except in chemistry and biochemistry.
- Aberrant notes in "Chim330" and "Chim302" and in the two courses "Biol380" and "bioc300".
- The percentage of failures in such courses are worth up to 48.5%
- The number of stranded students by a single course rises sometimes to 25%.
- There is a significant difference between the mean of the "English" and "French" in the same courses in "Biochemistry" and in "biology".
- The general averages by specialty are worth of 55.80/100 (in mathematics) up to 66.46/100 (in Biology).
- The averages of students in each of the specialties "Mathematics, Chemistry and Biochemistry" does not come from the same population.
- "Informatics, Mathematics and Statistics" are identical in notes of their students, it is the same for "Physics, electronics, chemistry, and Biochemistry", but for the specialty "biology" the notes of students seem completely away from all other specialties.

Opinion of the teachers:

Consultant professors whose courses represent the largest number of failure about the difficulties faced by students in their courses, we identified the following causes:

- Students do not understand the questions.
- Anxiety and stress among students.
- Gaps in the first two academic years.
- The absence in the courses and work practices.
- Weakness in computer knowledge and in the programming.
- The students do not have the habit of analyze and they just remember.
- The answer to the questions is in need of a good expression written in French or English.

Opinion of the Students

- Not many applications on the course.
- No relationship between the lecture in class and the questions in the exam.
- Lack of references and copies of examinations.
- Clinical terminology is difficult.
- Complicated calculation in the exam.
- Some teachers ask difficult and complicated questions to show the importance of their courses.

REFERENCE

1. Reference of data: Lebanese university – Faculty of Sciences Section1- “Hadath”.
2. Tukey JW; Exploratory Data Analysis. (Adison – Wisley), 1977.
3. Guen LEM; La boîte à moustaches de Tukey, un outil pour initier à la statistique. Revue statistiquement votre, numéro 2001; 4.
4. Dennis D; Mathematical statistics with applications – Sixth Edition.
5. Peter Sprint; Pratique des statistiques non paramétriques INRA.
6. Hajek J, Sidak Z; Theory of rank test, Academic press, New York.