A Universidade do Porto no Performance Ranking of Scientific Papers for World Universities

National Taiwan University NTU Ranking 2018

Reitoria da Universidade do Porto

Gabinete de Estudos Estratégicos e Melhoria Contínua

16 de outubro de 2018

Sumário

A Universidade do Porto no Performance Ranking of Scientific Papers for World Universities – NTU Ranking 2018

http://nturanking.lis.ntu.edu.tw/

1. Metodologia do NTU Ranking e participação da U.Porto

"The "Performance Ranking of Scientific Papers for World Universities" is released by National Taiwan University, and is also known as NTU Ranking. NTU Ranking provides overall ranking, rankings by six fields, and rankings by 14 selected subjects.

[…]

Sample Selection

This ranking system employs bibliometric methods to analyze and rank the scientific paper performances of the world's top 800 universities. The selection of the 800 universities for inclusion in this ranking system was based on information obtained from the Essential Science Indicators (ESI). Of more than 4,000 research institutions listed in ESI, this ranking system first selected the top 900 institutions based on the numbers of published journal articles and numbers of citations. Non-university institutions were then removed from the list, and the project staff compared the remaining universities to those included in other ranking programs such as ARWU, THE, QS, and U.S. News. Data used to assess the performances of the universities was drawn from ISI's ESI and Web of Science Core Collection (WOS), which includes SCI and SSCI, and Journal Citation Reports (JCR).

The concept of authority control was employed to retrieve data indexed under different forms of a university's name in the aforementioned databases – i.e. the official name, the abbreviated name and other possible forms of the name. This ranking system also considered the merging and splitting of universities (or different campuses in a university system) and included publications by university-affiliated institutions such as research centers and university hospitals. This effort ensured the accuracy of each university's number of published journal articles and the subsequent citation statistics.

Some university systems have several campuses. A few campuses within a particular university system may have been commonly perceived as individual institutions. However, they are indexed in ESI only by the university system name. For example, the University of Connecticut system includes a main campus in Storrs and five regional campuses throughout the state. Furthermore, it also contains the Schools of Medicine and Dental Medicine at UConn Health in Farmington. These are all indexed under "University of Connecticut" in ESI.

This ranking system corrected this flaw by manually searching SCI/SSCI in order to identify the actual number of articles and citations of these articles produced by each individual campus. Likewise, this ranking system employed the same manual searching procedures to ensure that the measurement of each university's Highly Cited Papers fairly represented the research performance of each individual campus.

The reader may notice that the publications counting method for some institutions in ESI changed this past year, and some universities and their affiliated institutions are now considered as single institutions where they were previously considered separate institutions. This led to an increase in the number of published journal articles. Moreover, journal articles are now indexed by publication year instead of database year. These two changes will affect our ranking results."[1]

[1] *In* http://nturanking.lis.ntu.edu.tw/methodology/sampleSelection acedido 6 de setembro de 2018.

“Indicators

The 2018 performance measures are composed of eight indicators. These indicators together represent three different criteria of scientific paper performance: research productivity, research impact, and research excellence. Table 1 lists the indicators and shows the respective weightings for each indicator.

Table 1 The Criteria and Indicators, and Their Respective Weightings, Used for the Overall Performance-Based Ranking

Criteria	2018 Overall Performance Indicators	Weighting	
Research productivity	Number of articles in the last 11 years* (2007-2017)	10%	25%
	Number of articles in the current year (2017)	15%	
Research impact	Number of citations in the last 11 years* (2007-2017)	15%	35%
	Number of citations in the last 2 years (2016-2017)	10%	
	Average number of citations in the last 11 years* (2007-2017)	10%	
Research Excellence	h-index of the last 2 years (2016-2017)	10%	40%
	Number of Highly Cited Papers* (2007-2017)	15%	
	Number of articles in the current year in high-impact journals (2016-2017)	15%	

*Note: The timeframe of the three long-term indicators is consistent with that in ESI, providing cumulative data for the last 11 years.” [2]

Notas adicionais:

A National Taiwan University não solicita informação às Universidades.

A National Taiwan University no Overall Ranking lista 500 Universidades. Por razão de empate no *overall score*, poderão ser mais.

Os Rankings by Field e by Subject listam 300 Universidades. Por razão de empate no *overall score*, poderão ser mais.

[2] *In* http://nturanking.lis.ntu.edu.tw/methodoloyg/indicators acedido 6 de setembro de 2018.

2. Evolução[3] das posições da U.Porto no NTU Ranking

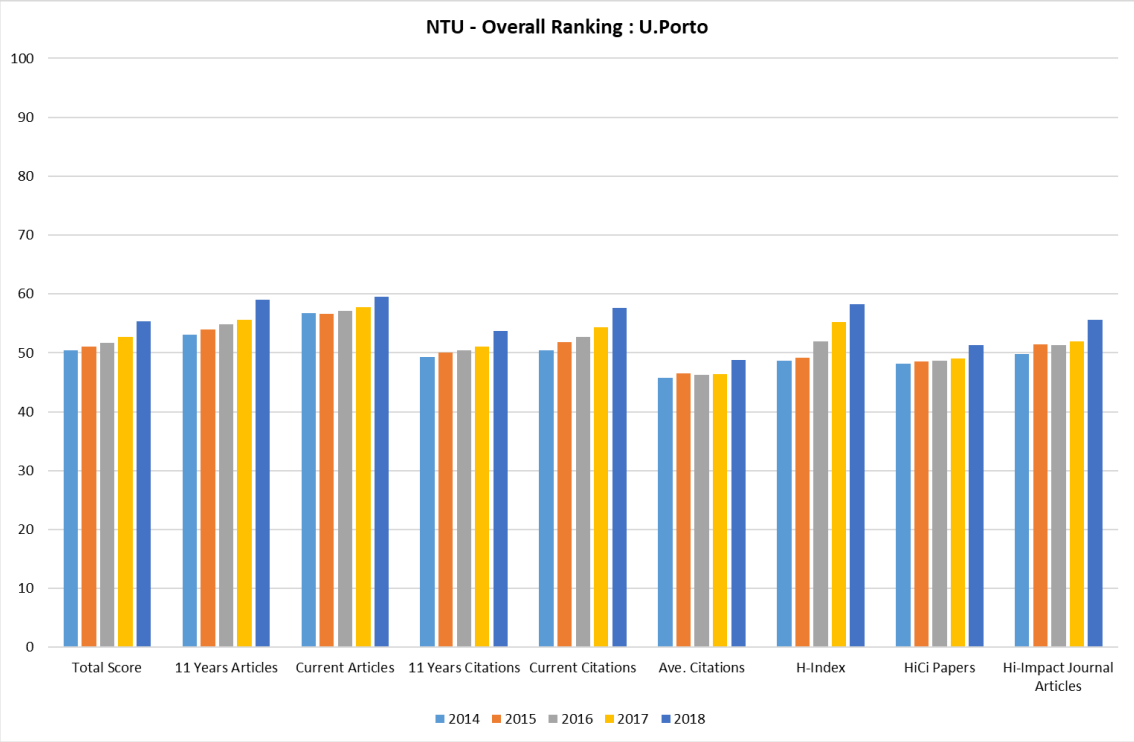
2.1 Overall Ranking

	Ranking Mundial	Ranking Europeu	Ranking Ibero-americano	Ranking Nacional
2007	459	195		1
2008	375	161	10	1
2009	332	140	11	1
2010	328	141	9	1
2011	320	141	8	1
2012	318	137	10	1
2013	296	126	10	1
2014	279	120	9	2
2015	269	115	9	2
2016	254	107	8	2
2017	232	93	6	2
2018	218	90	6	2

***Scores* 2014 a 2018**

	2014	2015	2016	2017	2018
World Rank	279	269	254	232	218
Total Score	50,4	51,1	51,7	52,7	55,4
11 Years Articles	53,1	54,0	54,8	55,6	59
Current Articles	56,8	56,6	57,1	57,8	59,5
11 Years Citations	49,3	50,0	50,4	51,1	53,7
Current Citations	50,4	51,8	52,7	54,4	57,6
Ave. Citations	45,8	46,5	46,3	46,4	48,8
H-Index	48,7	49,2	51,9	55,2	58,2
HiCi Papers	48,2	48,5	48,6	49,1	51,3
Hi-Impact Journal Articles	49,8	51,4	51,3	52,0	55,6
Ref. Rank (normalized by number of full-time faculty)	266	251	239	213	209

[3] Dados até 2013 retirados de "Evolução das posições da Universidade do Porto nos rankings universitários", janeiro de 2014 in https://sigarra.up.pt/up/pt/conteudos_service.conteudos_cont?pct_id=20113&pv_cod=55GoHdmanvIq; os dados de 2014, 2015, 2016, 2017 e 2018 foram retirados de http://nturanking.lis.ntu.edu.tw respetivamente em 10 de outubro de 2014, 12 de outubro de 2015, 10 de outubro de 2016, 10 de outubro de 2017 e 6 de setembro de 2018.



2.2 Rankings by Field

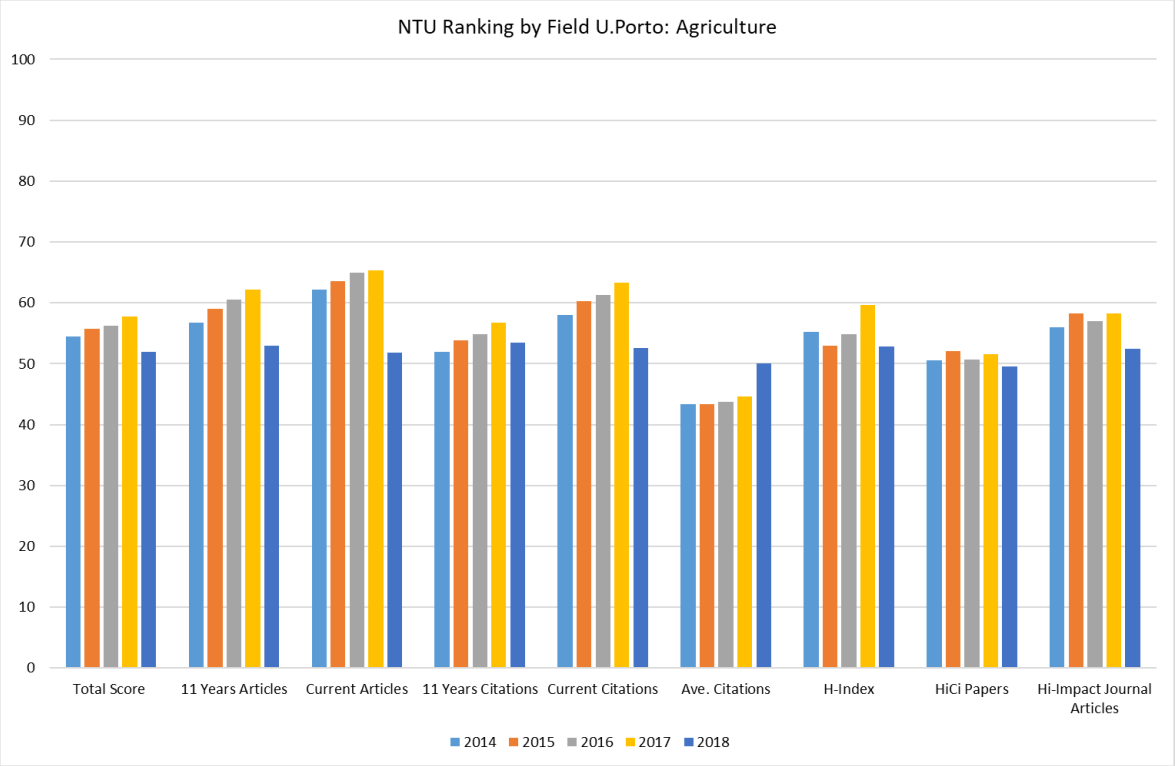
Na edição de 2018, à semelhança de 2017, a U.Porto surge em 4 dos 6 Rankings by Field.
A metodologia dos Rankings by Field é apresentada no Anexo1.

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agriculture	**World**	253	199	181	159	147	119	117	106	105	94	86
	Europe	102	72	67	61	56	42	42	35	33	28	25
	Iberoam	n/d	n/d	n/d	n/d	n/d	n/d	n/d	7	7	5	6
	PT	1	1	1	1	1	1	2	2	2	2	2
Clinical Medicine	**World**	--	--	--	--	--	--	--	--	--	--	--
Engineering	**World**	--	257	218	165	164	170	156	157	162	164	163
	Europe	--	91	67	46	43	50	38	35	37	35	33
	Iberoam	--	n/d	n/d	n/d	n/d	n/d	n/d	3	5	4	3
	PT	--	3	3	2	1	2	2	2	2	2	2
Life Sciences	**World**	--	--	283	290	296	262	226	226	229	199	203
	Europe	--	--	118	125	125	110	97	99	101	87	90
	Iberoam	--	--	n/d	n/d	n/d	n/d	n/d	6	6	5	5
	PT	--	--	1	1	1	1	1	1	1	1	1
Natural Sciences	**World**	--	--	285	226	212	276	281	261	290	266	256
	Europe	--	--	129	100	90	121	124	115	125	108	103
	Iberoam	--	--	n/d	n/d	n/d	n/d	n/d	11	13	11	11
	PT	--	--	2	2	1	2	2	2	2	2	2
Social Sciences	**World**	--	--	--	--	--	--	--	--	--	--	--

n/d – não disponível
-- não consta

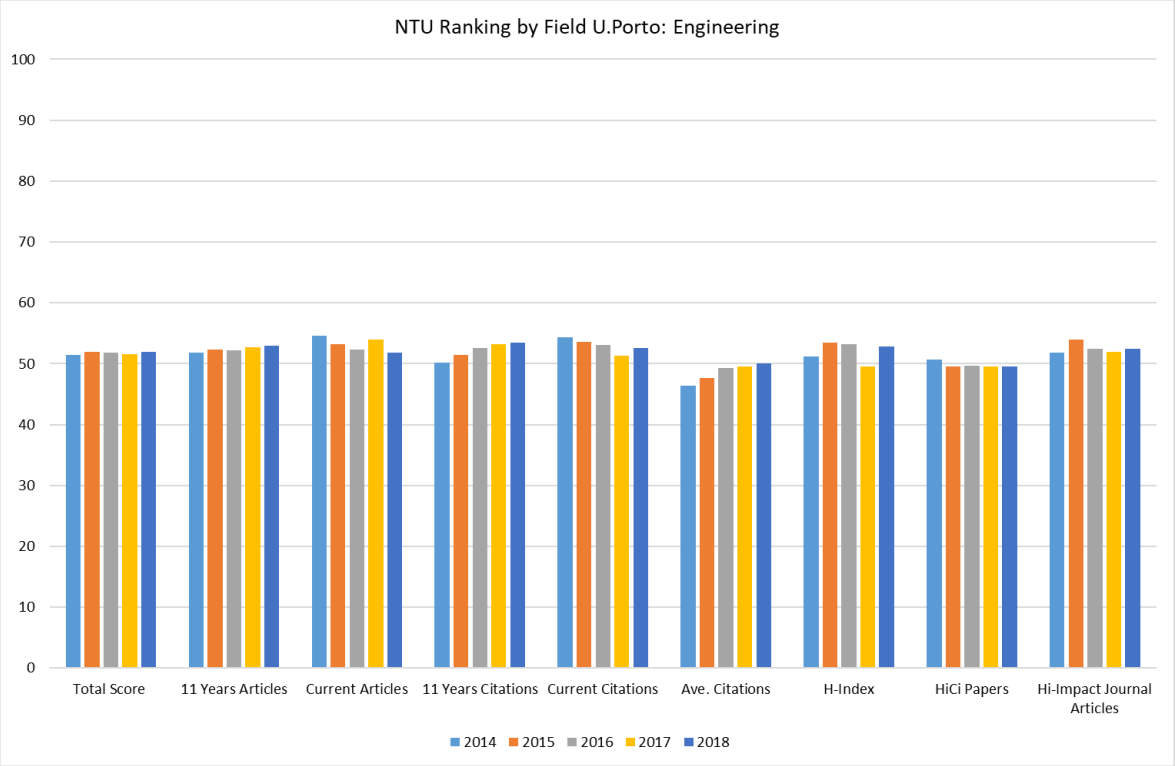
2.2.1 Agriculture

	2014	2015	2016	2017	2018
Total Score	54,5	55,7	56,2	57,8	51,9
11 Years Articles	56,8	59,0	60,5	62,2	52,9
Current Articles	62,2	63,6	65	65,3	51,8
11 Years Citations	52,0	53,9	54,9	56,7	53,5
Current Citations	58,0	60,3	61,3	63,3	52,6
Ave. Citations	43,3	43,3	43,7	44,6	50,1
H-Index	55,2	52,9	54,9	59,7	52,8
HiCi Papers	50,5	52,1	50,7	51,6	49,5
Hi-Impact Journal Articles	56,	58,3	57	58,3	52,5
World Rank	117	106	105	94	86



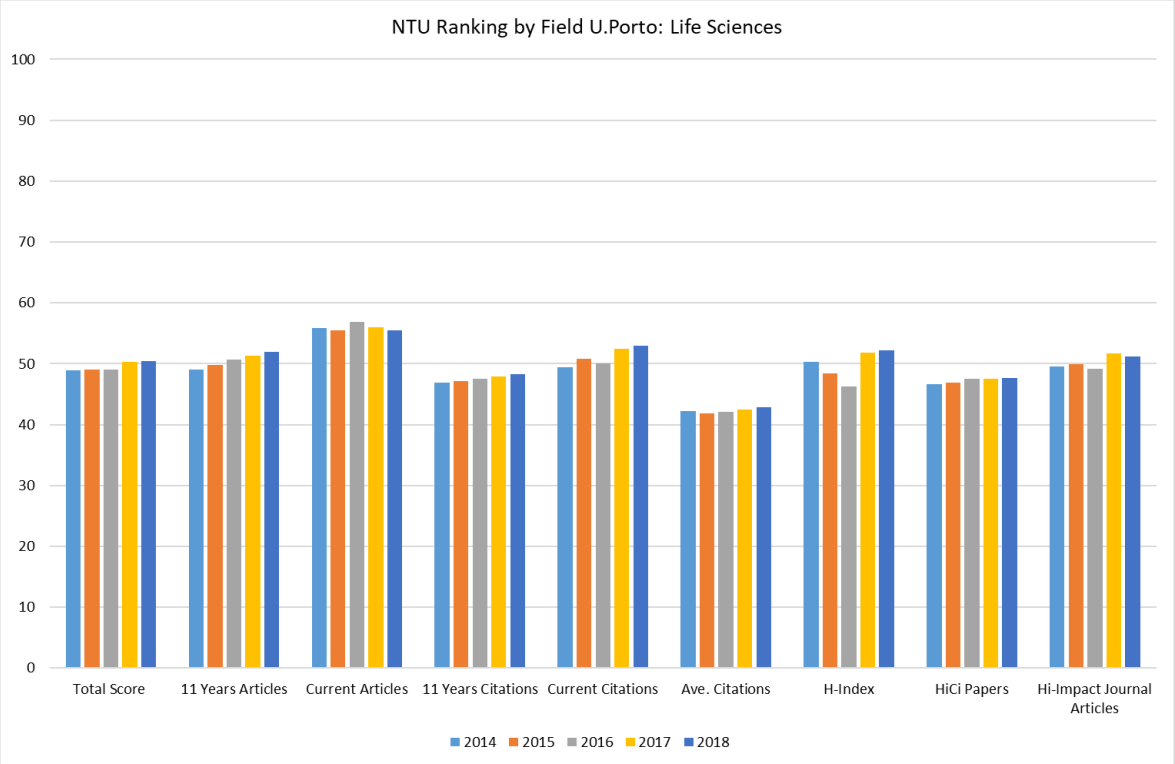
2.2.2 Engineering

	2014	2015	2016	2017	2018
Total Score	51,5	51,9	51,8	51,6	51,9
11 Years Articles	51,8	52,3	52,2	52,7	52,9
Current Articles	54,6	53,2	52,3	54,0	51,8
11 Years Citations	50,2	51,5	52,6	53,2	53,5
Current Citations	54,3	53,6	53,1	51,3	52,6
Ave. Citations	46,4	47,6	49,3	49,5	50,1
H-Index	51,2	53,5	53,2	49,5	52,8
HiCi Papers	50,7	49,6	49,7	49,6	49,5
Hi-Impact Journal Articles	51,8	54,0	52,4	52,0	52,5
World Rank	156	157	162	164	163



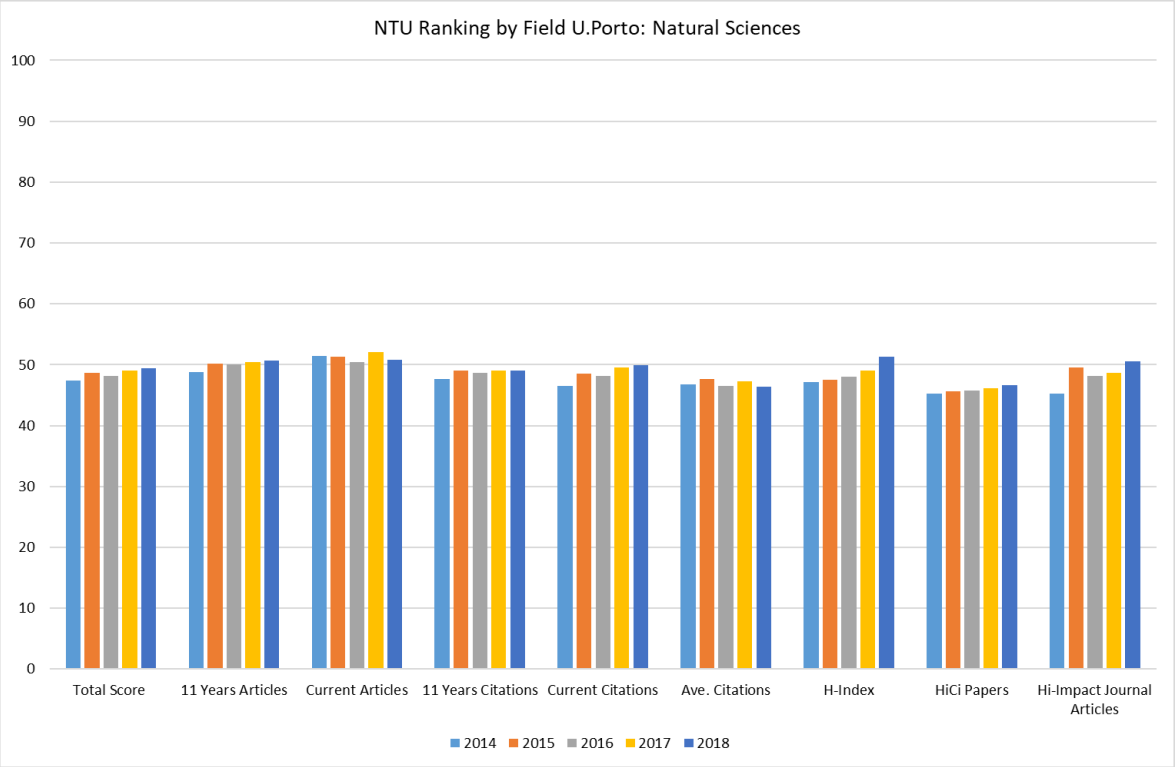
2.2.3 Life Sciences

	2014	2015	2016	2017	2018
Total Score	48,9	49,0	49,1	50,3	50,4
11 Years Articles	49,1	49,8	50,7	51,3	51,9
Current Articles	55,8	55,5	56,9	56,0	55,5
11 Years Citations	46,9	47,1	47,5	47,9	48,3
Current Citations	49,4	50,8	50,1	52,5	52,9
Ave. Citations	42,2	41,8	42,1	42,5	42,8
H-Index	50,3	48,4	46,3	51,8	52,2
HiCi Papers	46,7	46,9	47,5	47,5	47,6
Hi-Impact Journal Articles	49,5	49,9	49,2	51,7	51,2
World Rank	226	226	229	199	203



2.2.4 Natural Sciences

	2014	2015	2016	2017	2018
Total Score	47,4	48,7	48,2	49,0	49,4
11 Years Articles	48,8	50,2	50,1	50,4	50,7
Current Articles	51,5	51,3	50,4	52,1	50,8
11 Years Citations	47,6	49,0	48,6	49,0	49
Current Citations	46,5	48,5	48,2	49,5	49,9
Ave. Citations	46,8	47,7	46,5	47,3	46,4
H-Index	47,2	47,5	48	49,0	51,3
HiCi Papers	45,2	45,6	45,8	46,1	46,6
Hi-Impact Journal Articles	45,3	49,6	48,2	48,6	50,6
World Rank	281	261	290	266	256



2.3 Rankings by Subject

Na edição de 2018, à semelhança de 2017, a U.Porto surge em 11 dos 14 Rankings by Subject.

A metodologia dos Rankings by Subject é apresentada no Anexo 2.

		2010	2011	2012	2013	2014	2015	2016	2017	2018
Physics	**World**	243	225	251	--	--	294	--	--	--
	Europe	109	103	114	--	--	137	--	--	--
	Iberoam	n/d	n/d	n/d	--	--	18	--	--	--
	PT	2	2	2	--	--	2	--	--	--
Chemistry	**World**	242	179	124	150	151	162	172	177	172
	Europe	103	70	37	48	49	54	52	53	50
	Iberoam	n/d	n/d	n/d	n/d	n/d	9	9	9	8
	PT	2	1	1	1	2	2	2	2	2
Mathematics	**World**	--	--	--	--	--	--	--	--	--
Geosciences	**World**	--	--	--	--	--	--	--	--	--
Electrical Engineering	**World**	--	--	--	209	209	234	242	221	200
	Europe	--	--	--	62	63	70	74	62	53
	Iberoam	--	--	--	n/d	n/d	11	11	7	6
	PT	--	--	--	2	2	2	2	2	2
Computer Science	**World**	297	299	215	250	215	209	202	242	211
	Europe	112	117	75	91	65	66	59	78	58
	Iberoam	n/d	n/d	n/d	n/d	n/d	12	11	12	12
	PT	1	2	2	2	2	2	2	3	2
Mechanical Engineering	**World**	62	47	30	92	65	80	84	73	80
	Europe	17	13	7	28	19	25	23	21	22
	Iberoam	n/d	n/d	n/d	n/d	n/d	2	2	2	2
	PT	1	1	1	1	2	2	2	2	2
Chemical Engineering	**World**	85	58	60	64	69	76	80	82	83
	Europe	20	16	12	13	14	15	16	17	16
	Iberoam	n/d	n/d	n/d	n/d	n/d	3	1	1	2
	PT	1	1	1	1	1	1	1	1	1

		2010	2011	2012	2013	2014	2015	2016	2017	2018
Materials Science	**World**	255	239	291	226	218	195	247	245	228
	Europe	90	80	97	66	62	50	72	65	57
	Iberoam	n/d	n/d	n/d	n/d	n/d	5	7	8	5
	PT	3	3	3	3	3	3	4	4	2
Civil Engineering	**World**	126	97	67	54	50	59	58	53	53
	Europe	36	25	16	14	13	14	13	10	9
	Iberoam	n/d	n/d	n/d	n/d	n/d	3	2	2	2
	PT	2	1	1	1	2	2	2	2	2
Agricultural Sciences	**World**	--	66	57	47	69	62	58	57	31
	Europe	--	24	19	15	24	19	18	17	8
	Iberoam	--	n/d	n/d	n/d	n/d	5	6	6	4
	PT	--	1	1	1	1	1	1	1	1
Environment/Ecology	**World**	--	192	185	163	126	117	125	110	111
	Europe	--	65	61	56	47	43	47	42	43
	Iberoam	--	n/d	n/d	n/d	n/d	6	6	5	5
	PT	--	1	1	1	2	2	2	2	2
Plant & Animal Science	**World**	--	--	277	196	160	138	125	127	134
	Europe	--	--	127	86	68	57	50	52	56
	Iberoam	--	--	n/d	n/d	n/d	11	10	10	11
	PT	--	--	2	1	2	2	2	2	2
Pharmacology &Toxicology	**World**	--	--	206	149	87	99	65	58	67
	Europe	--	--	79	54	32	38	23	20	22
	Iberoam	--	--	n/d	n/d	n/d	3	3	3	3
	PT	--	--	1	1	1	1	1	1	1

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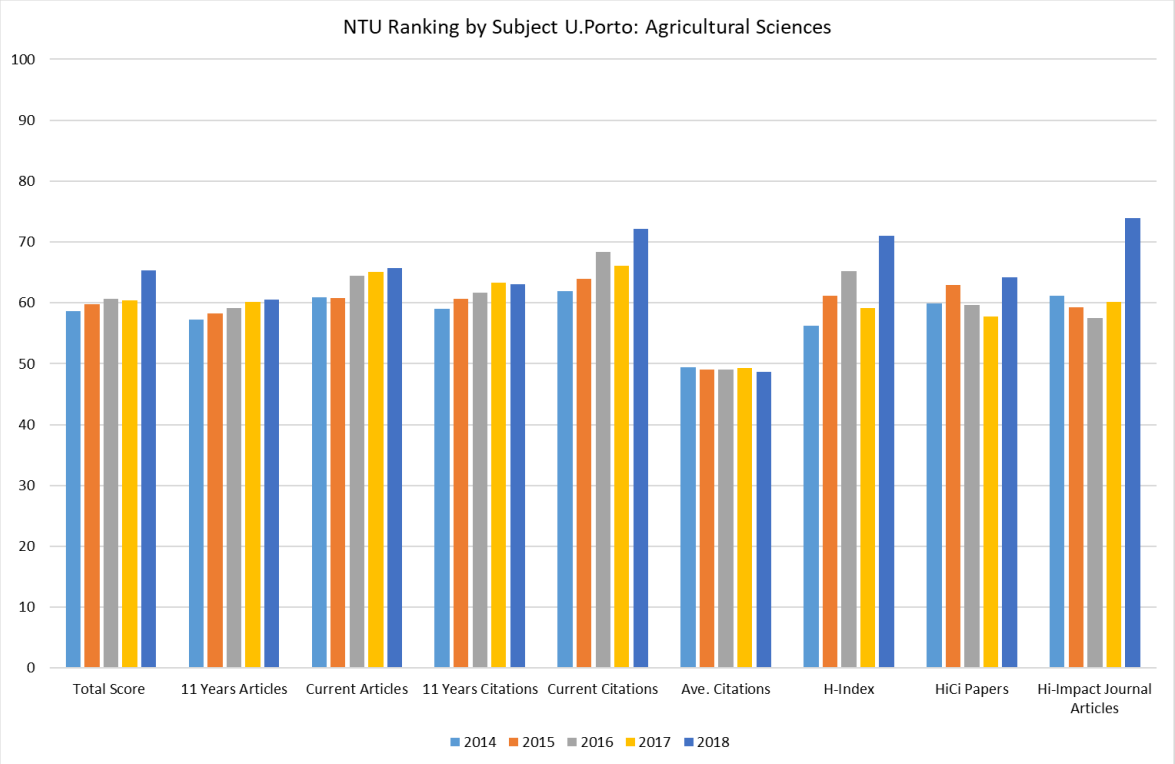
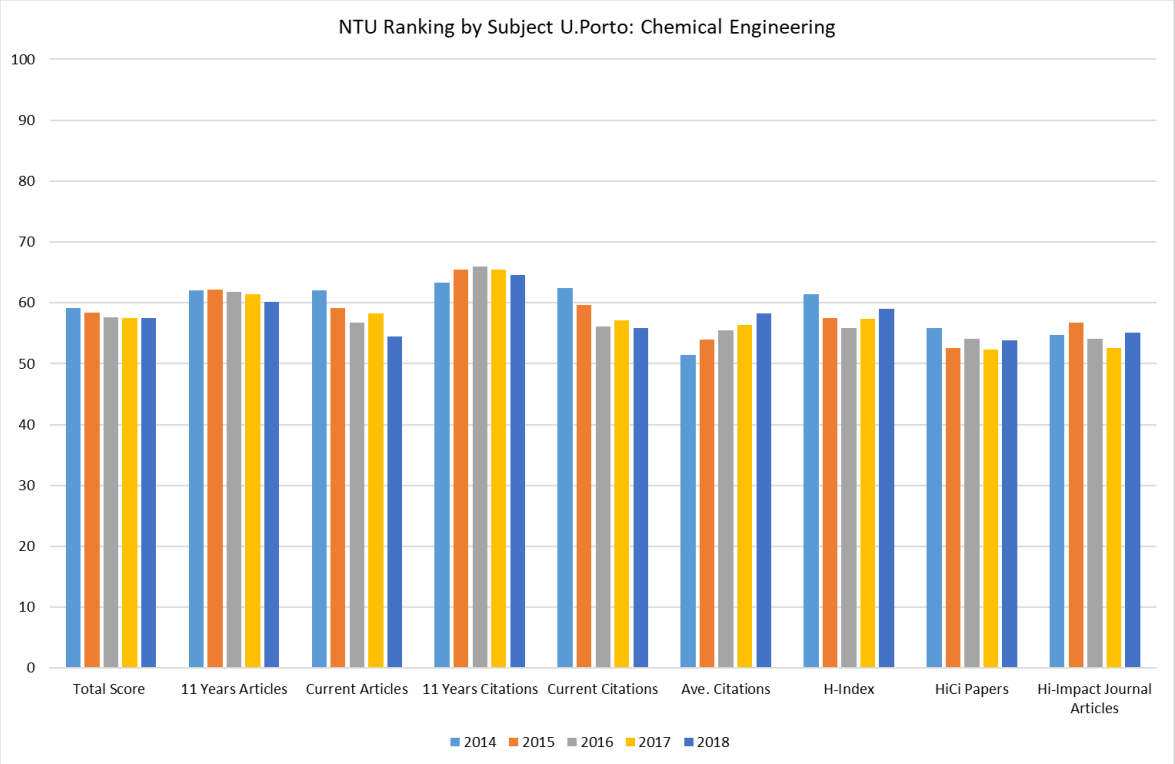
2.3.1 Agricultural Sciences

	2014	2015	2016	2017	2018
Total Score	58,6	59,8	60,7	60,4	65,3
11 Years Articles	57,3	58,2	59,1	60,2	60,5
Current Articles	60,9	60,8	64,4	65,1	65,7
11 Years Citations	59,0	60,6	61,7	63,3	63,1
Current Citations	61,9	63,9	68,4	66,1	72,2
Ave. Citations	49,4	49,1	49	49,3	48,6
H-Index	56,3	61,1	65,2	59,2	71
HiCi Papers	59,9	62,9	59,7	57,7	64,2
Hi-Impact Journal Articles	61,1	59,3	57,5	60,1	73,9
World Rank	69	62	58	57	31



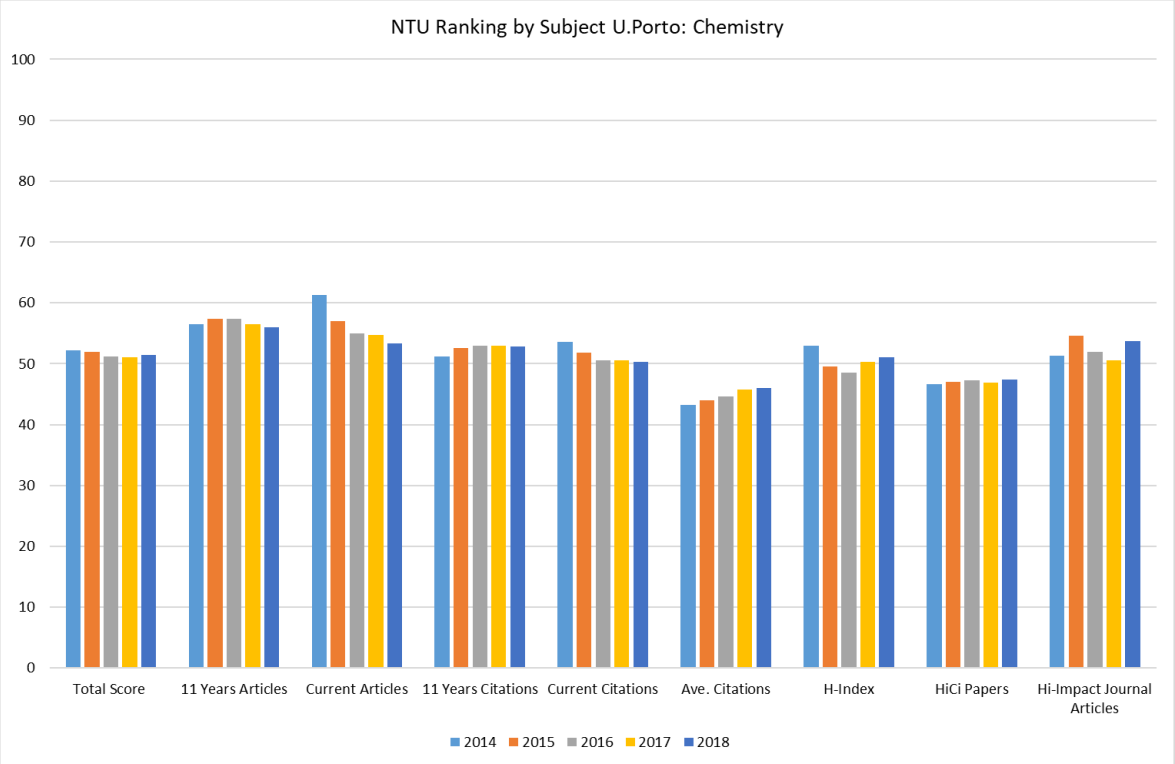
2.3.2 Chemical Engineering

	2014	2015	2016	2017	2018
Total Score	59,1	58,4	57,6	57,5	57,5
11 Years Articles	62,1	62,2	61,8	61,4	60,2
Current Articles	62,0	59,1	56,8	58,3	54,5
11 Years Citations	63,3	65,4	65,9	65,4	64,6
Current Citations	62,4	59,7	56,1	57,1	55,8
Ave. Citations	51,4	54,0	55,5	56,4	58,2
H-Index	61,4	57,5	55,9	57,4	59
HiCi Papers	55,9	52,6	54,1	52,3	53,8
Hi-Impact Journal Articles	54,7	56,7	54,1	52,6	55,1
World Rank	69	76	80	82	83



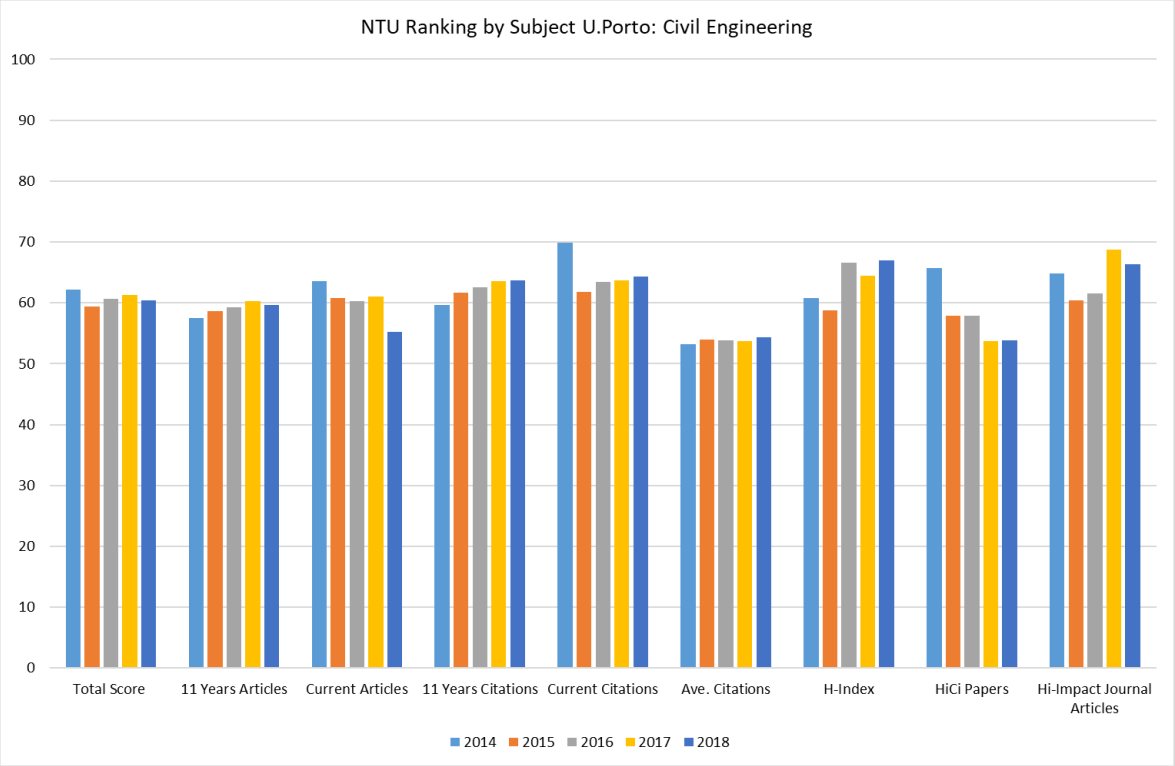
2.3.3 Chemistry

	2014	2015	2016	2017	2018
Total Score	52,2	51,9	51,2	51,1	51,4
11 Years Articles	56,5	57,4	57,4	56,5	56
Current Articles	61,3	57	55	54,7	53,3
11 Years Citations	51,2	52,6	52,9	52,9	52,8
Current Citations	53,6	51,8	50,5	50,6	50,3
Ave. Citations	43,2	44	44,6	45,7	46
H-Index	53	49,5	48,5	50,3	51,1
HiCi Papers	46,7	47	47,3	46,9	47,4
Hi-Impact Journal Articles	51,3	54,6	51,9	50,5	53,7
World Rank	151	162	172	177	172



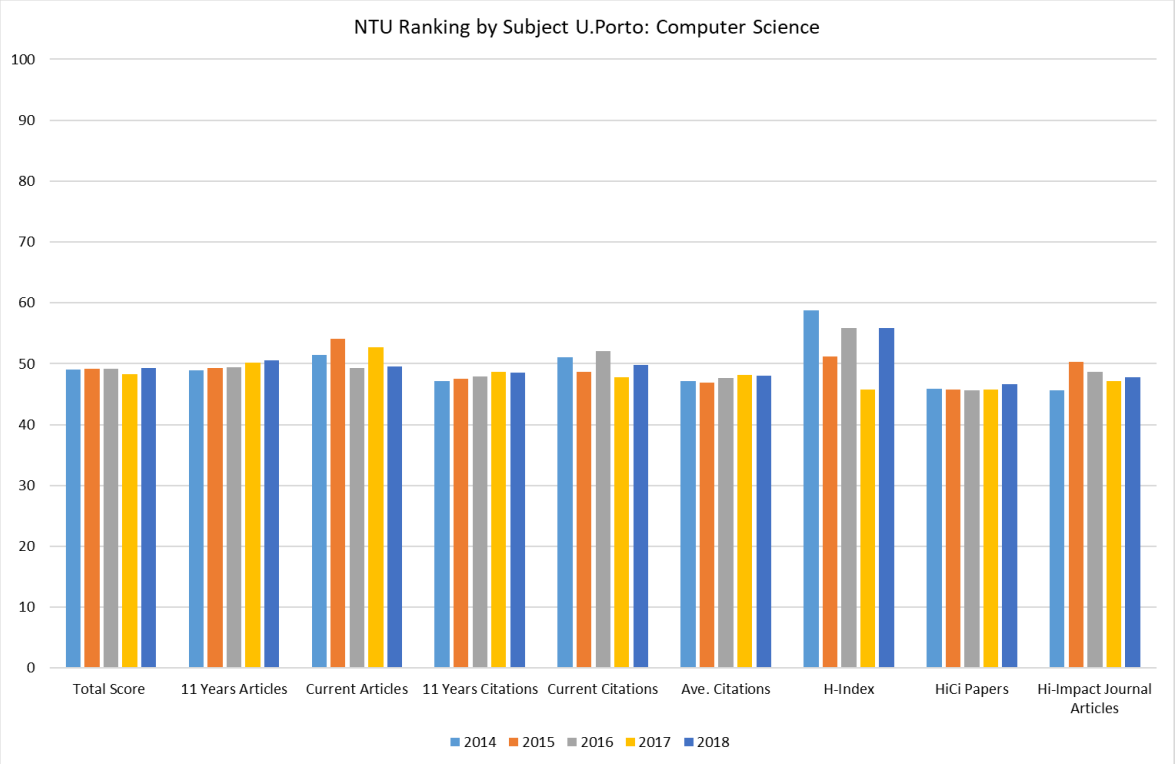
2.3.4 Civil Engineering

	2014	2015	2016	2017	2018
Total Score	62,2	59,4	60,7	61,3	60,4
11 Years Articles	57,5	58,6	59,3	60,3	59,7
Current Articles	63,6	60,8	60,3	61,0	55,2
11 Years Citations	59,7	61,7	62,5	63,6	63,7
Current Citations	69,9	61,8	63,4	63,7	64,3
Ave. Citations	53,2	54,0	53,8	53,7	54,4
H-Index	60,8	58,8	66,6	64,4	67
HiCi Papers	65,7	57,9	57,9	53,7	53,9
Hi-Impact Journal Articles	64,8	60,4	61,6	68,8	66,4
World Rank	50	59	58	53	53



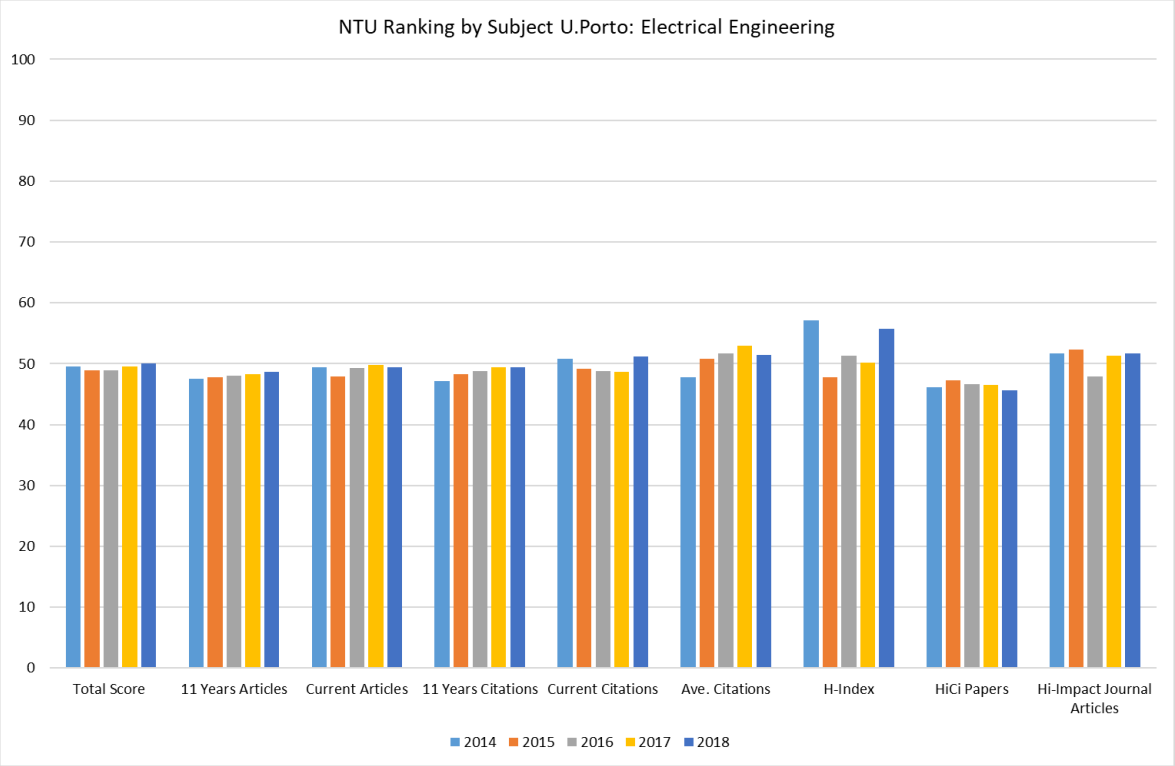
2.3.5 Computer Science

	2014	2015	2016	2017	2018
Total Score	49,1	49,2	49,2	48,3	49,3
11 Years Articles	48,9	49,3	49,4	50,2	50,5
Current Articles	51,4	54,1	49,3	52,7	49,6
11 Years Citations	47,1	47,5	47,9	48,6	48,5
Current Citations	51,1	48,6	52,1	47,8	49,8
Ave. Citations	47,2	46,9	47,6	48,1	48
H-Index	58,8	51,2	55,8	45,8	55,8
HiCi Papers	45,9	45,7	45,6	45,7	46,7
Hi-Impact Journal Articles	45,6	50,3	48,6	47,1	47,8
World Rank	215	209	202	242	211



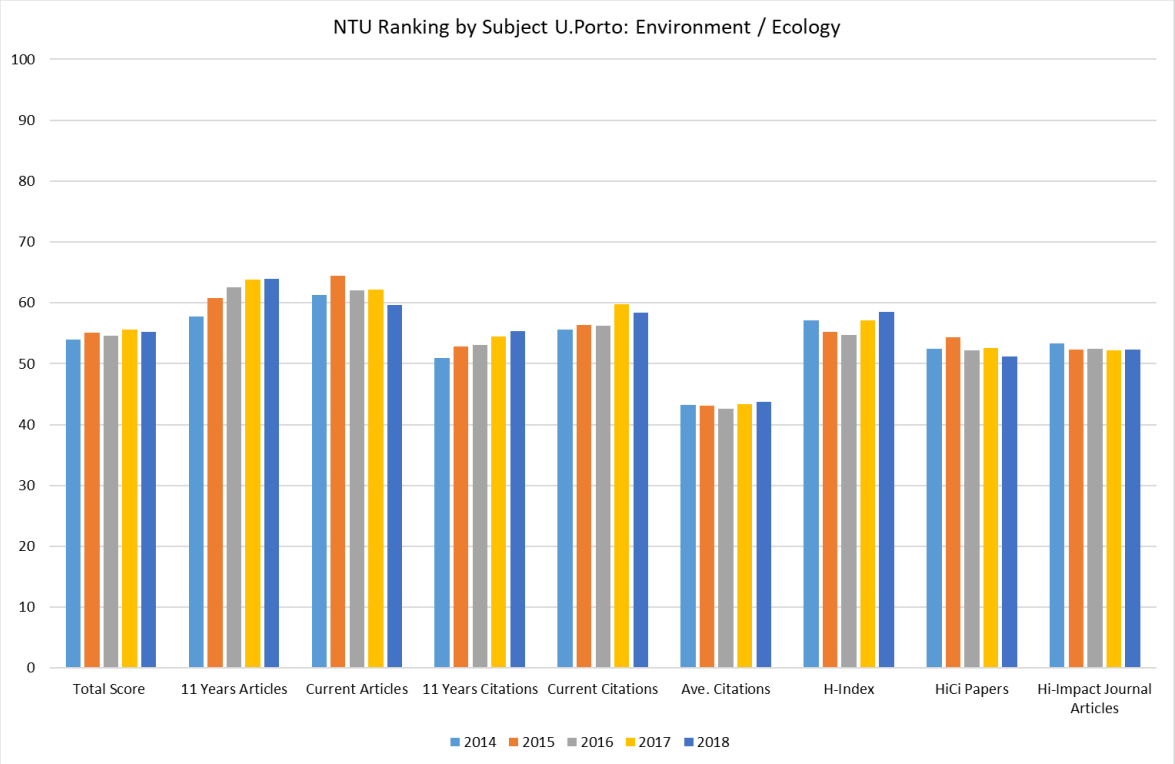
2.3.6 Electrical Engineering

	2014	2015	2016	2017	2018
Total Score	49,5	48,9	48,9	49,5	50,1
11 Years Articles	47,5	47,8	48	48,3	48,7
Current Articles	49,4	47,9	49,3	49,8	49,4
11 Years Citations	47,2	48,3	48,8	49,4	49,4
Current Citations	50,8	49,2	48,8	48,6	51,2
Ave. Citations	47,8	50,8	51,7	52,9	51,5
H-Index	57,1	47,8	51,3	50,2	55,7
HiCi Papers	46,1	47,3	46,7	46,5	45,6
Hi-Impact Journal Articles	51,7	52,3	47,9	51,3	51,7
World Rank	209	234	242	221	200



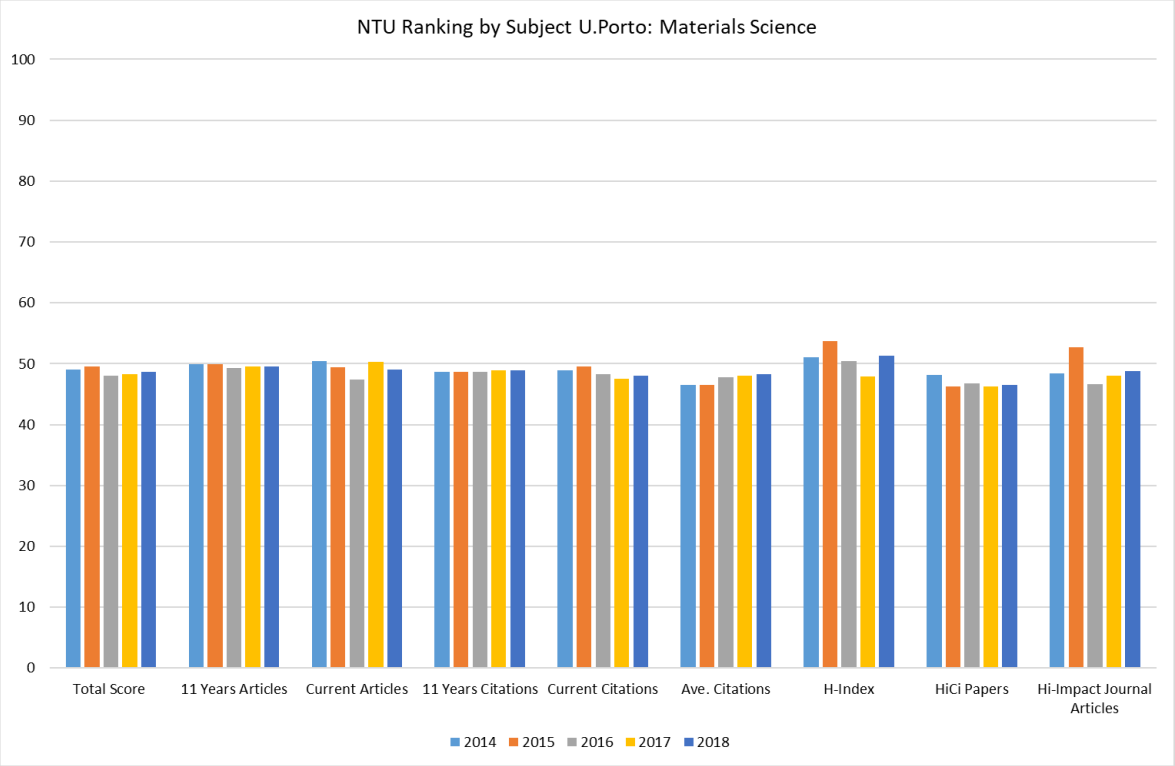
2.3.7 Environment / Ecology

	2014	2015	2016	2017	2018
Total Score	54,0	55,1	54,6	55,6	55,2
11 Years Articles	57,7	60,8	62,5	63,8	63,9
Current Articles	61,3	64,5	62,1	62,2	59,7
11 Years Citations	50,9	52,8	53,1	54,5	55,4
Current Citations	55,6	56,4	56,3	59,8	58,4
Ave. Citations	43,2	43,1	42,6	43,3	43,7
H-Index	57,1	55,2	54,7	57,1	58,5
HiCi Papers	52,4	54,3	52,2	52,6	51,2
Hi-Impact Journal Articles	53,3	52,3	52,5	52,2	52,3
World Rank	126	117	125	110	111



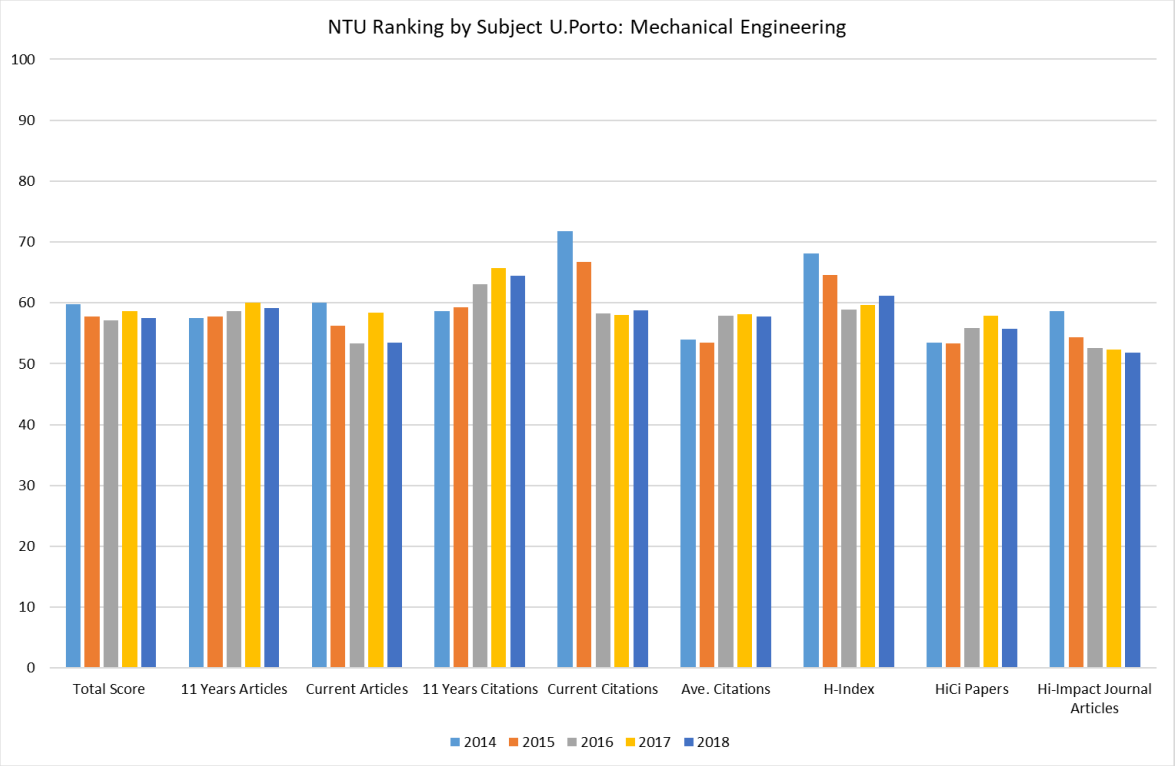
2.3.8 Materials Science

	2014	2015	2016	2017	2018
Total Score	49,0	49,5	48	48,3	48,7
11 Years Articles	49,9	49,9	49,3	49,6	49,5
Current Articles	50,4	49,4	47,4	50,3	49,1
11 Years Citations	48,6	48,6	48,6	48,9	48,9
Current Citations	48,9	49,5	48,3	47,5	48
Ave. Citations	46,5	46,5	47,8	48,0	48,3
H-Index	51,1	53,7	50,4	47,9	51,3
HiCi Papers	48,1	46,2	46,8	46,3	46,5
Hi-Impact Journal Articles	48,4	52,7	46,7	48,0	48,8
World Rank	218	195	247	245	228



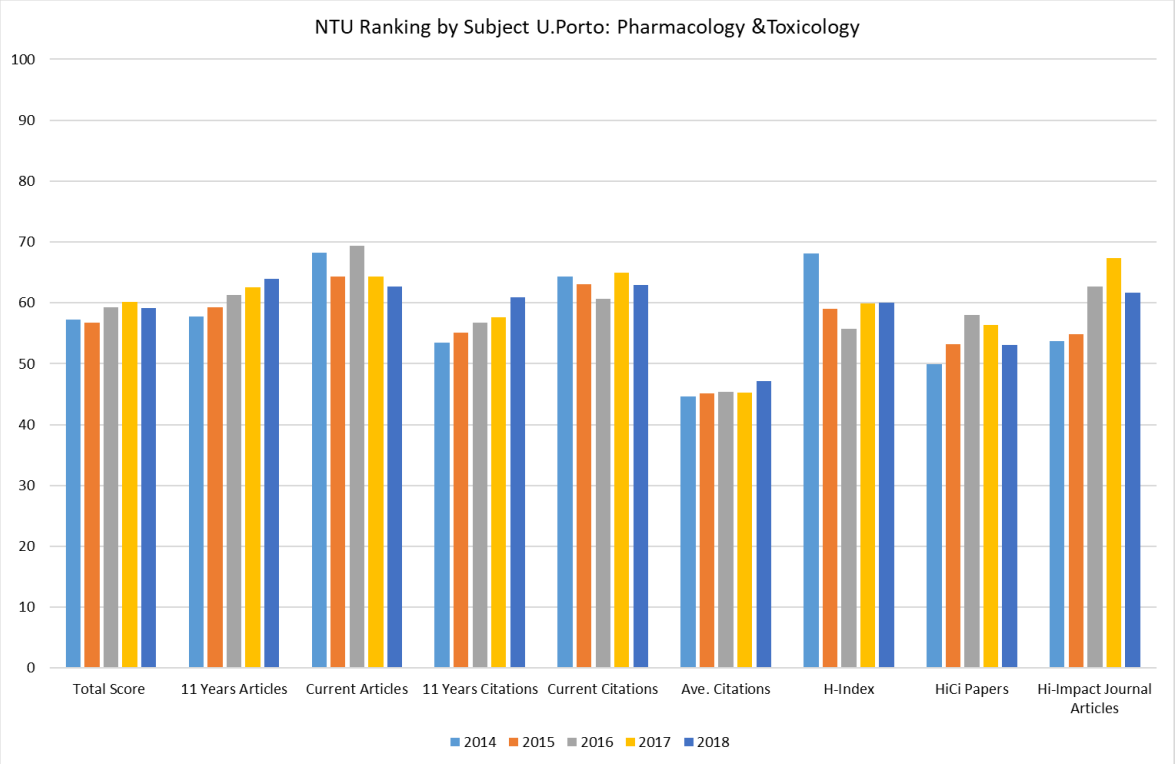
2.3.9 Mechanical Engineering

	2014	2015	2016	2017	2018
Total Score	59,8	57,7	57,1	58,7	57,5
11 Years Articles	57,5	57,7	58,7	60,0	59,2
Current Articles	60,0	56,3	53,3	58,4	53,5
11 Years Citations	58,7	59,3	63,1	65,7	64,5
Current Citations	71,8	66,7	58,2	58,0	58,8
Ave. Citations	54,0	53,5	57,9	58,1	57,8
H-Index	68,1	64,6	58,9	59,7	61,2
HiCi Papers	53,5	53,3	55,8	57,9	55,7
Hi-Impact Journal Articles	58,7	54,3	52,6	52,3	51,8
World Rank	65	80	84	73	80



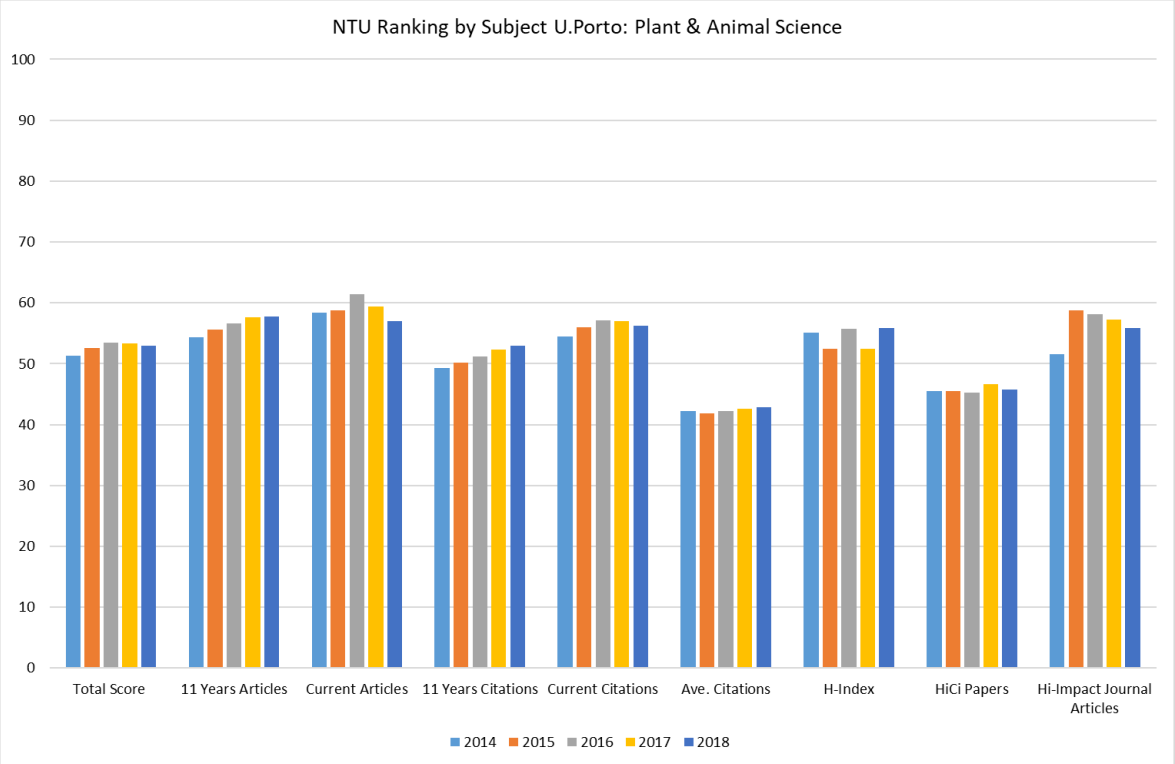
2.3.10 Pharmacology &Toxicology

	2014	2015	2016	2017	2018
Total Score	57,3	56,8	59,3	60,1	59,2
11 Years Articles	57,8	59,3	61,3	62,5	63,9
Current Articles	68,2	64,3	69,4	64,3	62,7
11 Years Citations	53,5	55,1	56,8	57,6	60,9
Current Citations	64,3	63,0	60,6	65,0	62,9
Ave. Citations	44,6	45,1	45,4	45,3	47,2
H-Index	68,1	59,0	55,7	59,9	60
HiCi Papers	49,9	53,2	58	56,4	53,1
Hi-Impact Journal Articles	53,7	54,9	62,7	67,3	61,7
World Rank	87	99	65	58	67



2.3.11 Plant & Animal Science

	2014	2015	2016	2017	2018
Total Score	51,3	52,6	53,5	53,3	53
11 Years Articles	54,3	55,6	56,6	57,6	57,7
Current Articles	58,4	58,8	61,4	59,4	57
11 Years Citations	49,3	50,2	51,2	52,3	53
Current Citations	54,5	56,0	57,1	57,0	56,3
Ave. Citations	42,2	41,9	42,2	42,6	42,8
H-Index	55,1	52,5	55,7	52,5	55,8
HiCi Papers	45,5	45,5	45,2	46,6	45,7
Hi-Impact Journal Articles	51,6	58,8	58,1	57,3	55,8
World Rank	160	138	125	127	134



3. Posição[4] das Universidades portuguesas no NTU Ranking

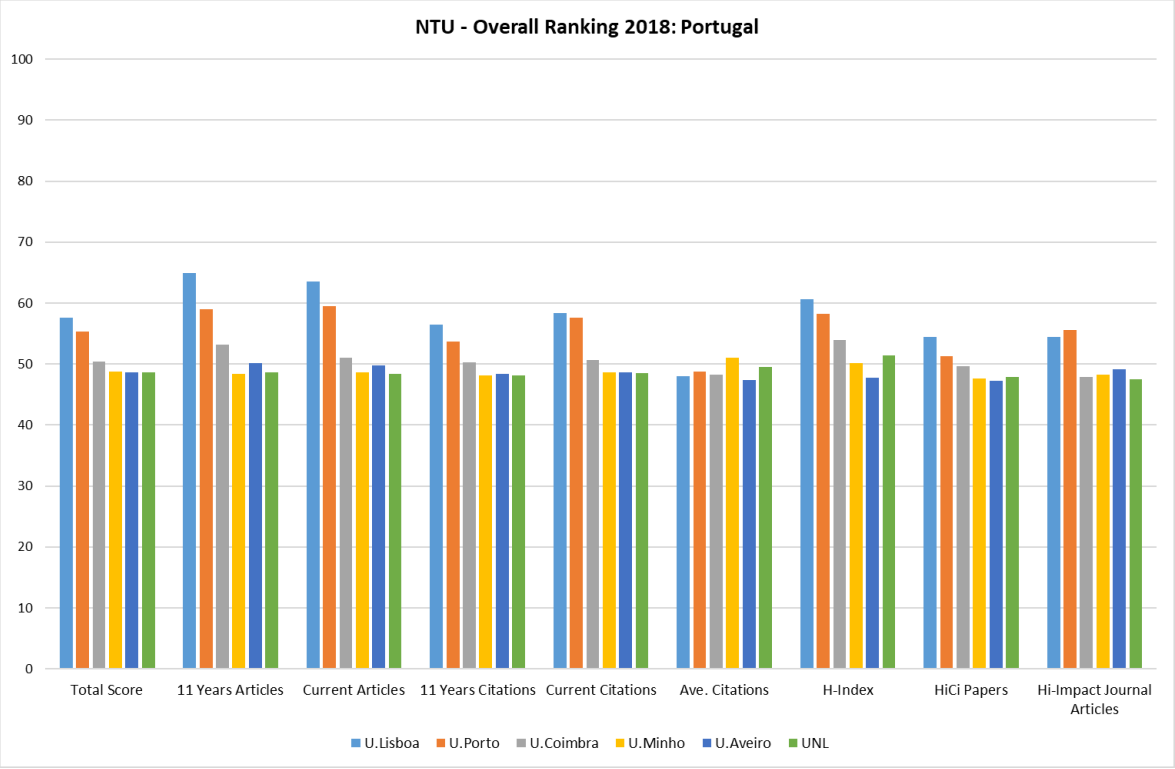
3.1 Overall Ranking

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
University of Lisbon					480		411	224	207	195	193	176
University of Porto	459	375	332	328	320	328	296	279	269	254	232	218
University of Coimbra			487	478	433	478	387	368	392	390	381	399
Minho University							494	470	490	474	467	491
University of Aveiro								487				498
New University of Lisbon									477	480	478	498
Universidade Tecnica de Lisboa			353	380	381	380	365					

Scores 2018

	Total Score	11Years Articles	Current Articles	11Years Citations	Current Citations	Ave. Cita-tions	H-Index	HiCi Papers	Hi-Impact Journal Articles	Ref. Rank *	# W	# Eu	# IBE	# PT
U.Lisboa	57,6	64,9	63,6	56,5	58,4	48	60,6	54,5	54,5	211	176	67	3	1
U.Porto	55,4	59	59,5	53,7	57,6	48,8	58,2	51,3	55,6	209	218	89	6	2
U.Coimbra	50,4	53,2	51,1	50,3	50,7	48,3	53,9	49,6	47,9	394	399	162	18	3
U.Minho	48,8	48,4	48,7	48,2	48,6	51	50,2	47,7	48,3	501-550	491	204	30	4
U.Aveiro	48,6	50,1	49,8	48,4	48,7	47,4	47,8	47,2	49,1	394	498	207	31	5
UNL	48,6	48,7	48,4	48,1	48,5	49,5	51,4	47,9	47,5	501-550	498	207	31	5
#IES											508	210	32	6

* normalized by number of full-time faculty



[4] Dados até 2013 retirados de "Evolução das posições da Universidade do Porto nos rankings universitários", janeiro de 2014 in https://sigarra.up.pt/up/pt/conteudos_service.conteudos_cont?pct_id=20113&pv_cod=55GoHdmanvIq; os dados de 2014, 2015, 2016, 2017 e 2018 foram retirados de http://nturanking.lis.ntu.edu.tw respetivamente em 10 de outubro de 2014, 12 de outubro de 2015, 10 de outubro de 2016, 10 de outubro de 2017 e 6 de setembro de 2018.

3.2 Rankings by Field

Estão presentes Universidades portuguesas em 4 dos 6 Rankings by Field.

A metodologia dos Rankings by Field é apresentada no Anexo1.

World Rank by Field	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agriculture	U.Porto:253	U.Porto:199 UTL:256 U.Aveiro:299	U.Porto:181 UTL:277 U.Aveiro:287	U.Porto:159 U.Aveiro:252 UTL:288	U.Porto:147 UTL:264	U.Porto:119 UTL:201 U.Aveiro:294	U.Lisboa:103 U.Porto:117 U.Aveiro:269	U.Lisboa:95 U.Porto:106 U.Aveiro:248 UNL: 291	U.Lisboa:102 U.Porto:105 U.Aveiro:243	U.Lisboa:81 U.Porto:94 U.Aveiro:191	U.Lisboa:79 U.Porto:86 U.Aveiro:203
Clinical Medicine	-	-	-	-	-	-	-	-	-	-	
Engineering	U.Aveiro:171	U.Aveiro:137 UTL:189 U.Porto:257	U.Aveiro:172 UTL:183 U.Porto:218	UTL:157 U.Porto:165 U.Aveiro:168 U.Minho:291	U.Porto:164 UTL:166 U.Aveiro:180 U.Minho:296	UTL:136 U.Porto:170 U.Aveiro:173	U.Lisboa:113 U.Porto:156 U.Aveiro:190 U.Minho:273	U.Lisboa:104 U.Porto:157 U.Aveiro:196 U.Minho:272	U.Lisboa:103 U.Porto:162 U.Aveiro:229 U.Minho:278	U.Lisboa:115 U.Porto:164 U.Aveiro:225 U.Minho:264	U.Lisboa:133 U.Porto:163 U.Aveiro:241 U.Minho:288
Life Sciences	-	-	U.Porto:283	U.Porto:290	U.Porto:296	U.Porto:262	U.Porto:226	U.Porto:226 U.Lisboa:293 U.Coimbra:297	U.Porto:229 U.Lisboa:266	U.Porto:199 U.Lisboa:234	U.Porto:203 U.Lisboa:236
Natural Sciences	-	UTL:229	UTL:230 U.Porto:285	UTL:224 U.Porto:226	U.Porto:212 UTL:243	UTL:229 U.Porto:276	U.Lisboa:123 U.Porto:281	U.Lisboa:102 U.Porto:261	U.Lisboa:124 U.Porto:290	U.Lisboa:121 U.Porto:266	U.Lisboa:127 U.Porto:256
Social Sciences	-	-	-	-	-	-	-	-	-	-	

3.2.1 Agriculture

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	59,6	65,6	67,4	60,7	65,3	45,9	60,4	55,6	55,5	79	22	4	1
U.Porto	58,5	62,5	63,2	57,5	64,1	44,8	58,4	51,8	64,1	86	25	6	2
U.Aveiro	51,1	53,2	53,6	50	55,6	43,9	54,2	47,4	51,5	203	82	15	3
Nº IES										307	124	28	3

3.2.2 Engineering

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	54	61,2	56,8	57,5	53,6	44,3	51,6	53,1	52,2	133	24	2	1
U.Porto	51,9	52,9	51,8	53,5	52,6	50,1	52,8	49,5	52,5	163	33	3	2
U.Aveiro	49,2	50	48,5	50,8	48,5	50,7	50,4	46,3	49,4	241	62	8	3
U.Minho	47,7	48,5	48,1	48,8	47	49,4	45,6	45,4	48,4	288	79	12	4
Nº IES										306	88	12	4

3.2.3 Life Sciences

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Porto	50,4	51,9	55,5	48,3	52,9	42,8	52,2	47,6	51,2	203	90	5	1
U.Lisboa	49,4	50,4	52,2	48,5	50,2	46,2	50,1	49	48,4	236	105	7	2
Nº IES										303	131	10	2

3.2.4 Natural Sciences

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	55,1	64,3	61,8	56	55,2	42,7	54,7	52,5	52,7	127	46	4	1
U.Porto	49,4	50,7	50,8	49	49,9	46,4	51,3	46,6	50,6	256	103	11	2
Nº IES										300	126	14	2

3.3 Rankings by Subject

Estão presentes Universidades portuguesas em todos os Rankings by Subject.

A metodologia dos Rankings by Subject é apresentada no Anexo 2.

World Rank by Subject	2010	2011	2012	2013	2014	2015	2016	2017	2018
Physics	UTL:189 U.Porto:243	UTL:198 U.Porto:225	UTL:226 U.Porto:251	UTL:230	U.Lisboa:136	U.Lisboa:134 U.Porto:294	U.Lisboa:142 U.Minho:288	U.Lisboa:141 U.Minho:254	U.Lisboa:155 U.Minho:286
Chemistry	UTL:225 U.Porto:242 U.Aveiro:256	U.Porto:179 UTL:230 U.Aveiro:253	U.Porto:124	U.Porto:150 U.Aveiro:194 UTL:229 UNL:284	U.Lisboa:148 U.Porto:151 U.Aveiro:198 UNL:250	U.Lisboa:122 U.Porto:162 U.Aveiro:189 UNL:246	U.Lisboa:133 U.Porto:172 U.Aveiro:206 UNL:249	U.Lisboa:142 U.Porto:177 U.Aveiro:203 UNL:270	U.Lisboa:152 U.Porto:172 U.Aveiro:201 UNL:296
Mathematics	UTL:121	UTL:148 U.Aveiro:213	UTL:120 U.Aveiro:141	UTL:135 U.Aveiro:144	U.Lisboa:75 U.Aveiro:149	U.Lisboa:44 U.Aveiro:257	U.Lisboa:52 U.Aveiro:213	U.Lisboa:74 U.Aveiro:265	U.Lisboa:60 U.Aveiro:222
Geosciences	-	-	UL:218	UL:211	U.Lisboa:126	U.Lisboa:98	U.Lisboa:104	U.Lisboa:105	U.Lisboa:103
Electrical Engineering	UTL:198 U.Minho:204	U.Minho:166 UTL:189 U.Coimbra:293	UTL:160	UTL:132 U.Porto:209 UMinho:284	U.Lisboa:126 U.Porto:209 U.Coimbra:274 UMinho:287	U.Lisboa:127 U.Porto:234 U.Coimbra:273	U.Lisboa:107 U.Porto:242 U.Coimbra:286 UMinho:288	U.Lisboa:108 U.Porto:221 U.Minho:271 U.Coimbra:295	U.Lisboa:120 U.Porto:200 U.Minho:287
Computer Science	U.Porto:297 UTL:300	UTL:191 U.Porto:299	UTL:142 U.Porto:215	UTL:126 U.Porto:250	U.Lisboa:104 U.Porto:215	U.Lisboa:104 U.Porto:209	U.Lisboa:109 U.Porto:202	U.Lisboa:141 U.Coimbra:239 U.Porto:242	U.Lisboa:146 U.Porto:211
Mechanical Engineering	U.Porto:62 UTL:132 U.Aveiro:138	U.Porto:47 UTL:132 U.Aveiro:152 U.Minho:223 U.Coimbra:255	U.Porto:30 UTL:107 U.Aveiro:126 U.Coimbra:241	U.Porto:92 UTL:94 U.Aveiro:131 U.Coimbra:264 U.Minho:298	U.Lisboa:59 U.Porto:65 U.Aveiro:158 U.Coimbra:205	U.Lisboa:47 U.Porto:80 U.Aveiro:151 U.Coimbra:234	U.Lisboa:40 U.Porto:84 U.Aveiro:121 U.Coimbra:253 U.Minho:288	U.Lisboa:53 U.Porto:73 U.Aveiro:157 U.Coimbra:243 U.Minho:282	U.Lisboa:66 U.Porto:80 U.Aveiro:145 U.Minho:237 U.Coimbra:294
Chemical Engineering	U.Porto:85 UTL:140 U.Aveiro:181 U.Minho:250 U.Coimbra:275	U.Porto:58 UTL:136 U.Aveiro:174 U.Minho:178 U.Coimbra:299	U.Porto:60 U.Aveiro:150 UTL:151 U.Minho:183	U.Porto:64 UTL:145 U.Aveiro:161 U.Minho:175 UC:263	U.Porto:69 U.Lisboa:129 U.Aveiro:175 U.Minho:201 U.Coimbra:250	U.Porto:76 U.Lisboa:132 U.Aveiro:145 U.Minho:187 U.Coimbra:256	U.Porto:80 U.Lisboa:119 U.Aveiro:179 U.Minho:210 U.Coimbra:267	U.Porto:82 U.Lisboa: 100 U.Aveiro:152 U.Minho:231 UNL:281 U.Coimbra:289	U.Porto:83 U.Lisboa: 107 U.Aveiro:159 U.Minho:248 UNL:267
Materials Science	U.Aveiro:102 U.Minho:246 U.Porto:255 UTL:276	U.Aveiro:120 U.Minho:221 U.Porto:239 UTL:279	U.Aveiro:131 U.Minho:214 U.Porto:291	U.Aveiro:114 U.Minho:215 U.Porto:226	U.Aveiro:122 U.Lisboa:207 U.Porto:218 U.Minho:218	U.Aveiro:147 U.Lisboa:191 U.Porto:195 U.Minho:214	U.Aveiro:159 U.Lisboa:207 U.Minho:216 U.Porto:247	U.Aveiro:180 U.Minho:198 U.Lisboa:227 U.Porto:245	U.Aveiro:180 U.Porto:228 U.Minho:245 U.Lisboa:267

World Rank by Subject	2010	2011	2012	2013	2014	2015	2016	2017	2018
Civil Engineering	UTL:109 U.Porto:126 U.Minho:278	U.Porto:97 UTL:115 U.Aveiro:227 U.Minho:240 UNL:247	U.Porto:67 UTL:90 U.Minho:241 U.Coimbra:248 UNL:253 U.Aveiro:295	U.Porto:54 UTL:67 U.Minho:217 U.Coimbra:246 U.Aveiro:269	U.Lisboa:47 U.Porto:50 U.Minho:187 U.Coimbra:224 U.Aveiro:261 UNL:300	U.Lisboa:36 U.Porto:59 U.Minho:209 U.Aveiro:228 U.Coimbra:241	U.Lisboa:28 U.Porto:58 U.Minho:182 U.Coimbra:194 U.Aveiro:245 UNL:294	U.Lisboa:29 U.Porto:53 U.Aveiro:195 U.Minho:223 U.Coimbra:230 UNL:275	U.Lisboa:41 U.Porto:53 U.Aveiro:208 U.Coimbra:216 U.Minho:219 UNL:296
Agricultural Sciences	-	U.Porto:66 UTL:162 U.Aveiro:249 U.Lisboa:299	U.Porto:57 U.Minho:209 UTL:223 U.Aveiro:261	U.Porto:47 UTL:125 U.Minho:204 U.Aveiro:247	U.Porto:69 U.Lisboa:87	U.Porto:62 U.Lisboa:83 U.Minho:155	U.Porto:58 U.Lisboa:82 U.Minho:146	U.Porto:57 U.Lisboa:62 U.Minho:131 U.Aveiro:278	U.Porto:31 U.Lisboa:75 IPBragança:105 U.Minho:138 U.Aveiro:254
Environment/ Ecology	-	U.Porto:192 U.Aveiro:193 UTL:261 U.Lisboa:281 U.Coimbra:294	U.Porto:185 U.Aveiro:212 UTL:262 U.Coimbra:266	U.Porto:163 UTL:198 U.Aveiro:223 U.Coimbra:273 U.Lisboa:290	U.Lisboa:118 U.Porto:126 U.Aveiro:206	U.Lisboa:103 U.Porto:117 U.Aveiro:178 U.Évora:185 U.Coimbra:292	U.Lisboa:99 U.Porto:125 U.Aveiro:187 U.Évora:216 U.Coimbra:265	U.Lisboa:84 U.Porto:110 U.Aveiro:144 U.Coimbra:293	U.Lisboa:84 U.Porto:111 U.Aveiro:160 U.Coimbra:293
Plant & Animal Science	-	U.Lisboa:296	U.Lisboa:242 U.Porto:277	U.Porto:196 U.Lisboa.250 UAlgarve:280 UTL:282	U.Lisboa:95 U.Porto:160 UAlgarve:280	U.Lisboa:87 U.Porto:138 UNL:204 U.Aveiro:266 UAlgarve:292	U.Lisboa:101 U.Porto:125 U.Aveiro:252 UNL:267 UAlgarve:280	U.Lisboa:83 U.Porto:127 U.Aveiro:212 UNL:256 UAlgarve:286	U.Lisboa:70 U.Porto:134 U.Aveiro:246 UNL:292 UAlgarve:292
Pharmacology &Toxicology	-	-	U.Porto:206 U.Coimbra:237	U.Porto:149 UCoimbra:37	U.Porto:87 U.Coimbra:267	U.Porto:99 U.Coimbra:202	U.Porto:65 U.Coimbra:193	U.Porto:58 U.Coimbra:206	U.Porto:67 U.Lisboa:159 U.Coimbra:221

3.3.1 Agricultural Sciences

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Porto	65,3	60,5	65,7	63,1	72,2	48,6	71	64,2	73,9	31	8	4	1
U.Lisboa	57,9	58,5	57,9	62	57,9	49,9	58,6	61,5	54,7	75	24	10	2
IPBragança	54,7	51	49,3	52,6	55,1	49,6	64,8	60,7	55,1	105	39	16	3
U.Minho	52,5	47,7	46,6	50,9	52	57	55,5	58	52,8	138	61	24	4
U.Aveiro	49,2	48,4	48,3	49,4	47,4	49,1	46,3	50,8	51,8	254	109	44	5
Nº IES										300	124	48	5

3.3.2 Chemical Engineering

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Porto	57,5	60,2	54,5	64,6	55,8	58,2	59	53,8	55,1	83	16	2	1
U.Lisboa	55,6	58,6	58,7	57,1	55,8	47,4	53,7	56,7	54,4	107	24	3	2
U.Aveiro	52,1	51,4	49,4	55,2	50,5	61,6	53,7	46,6	51,6	159	40	6	3
U.Minho	49,1	50,9	47,3	51,1	47,7	50,4	51,9	47,3	47,7	248	69	15	4
UNL	48,3	48,2	47,4	48,8	47,2	52,1	48,4	46,6	48,5	267	78	18	5
Nº IES										304	92	19	5

3.3.3 Chemistry

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	52,2	60,5	57,3	55	52,1	44,3	50	48,4	49,6	152	38	7	1
U.Porto	51,4	56	53,3	52,8	50,3	46	51,1	47,4	53,7	175	50	8	2
U.Aveiro	50,3	52	50,7	51,5	48,7	50	50	48,2	51,3	201	61	10	3
UNL	47,5	49,3	47,2	49,2	45,6	50	44,3	47	47	296	117	19	4
Nº IES										305	117	19	4

3.3.4 Civil Engineering

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	62,8	75,6	69,7	68,5	63	45,3	59,8	62,3	55,8	41	8	1	1
U.Porto	60,4	59,7	55,2	63,7	64,3	54,4	67	53,9	66,4	53	9	2	2
U.Aveiro	50,5	51	48,7	49,7	51,5	46,7	59,8	44,2	54,6	208	62	11	3
U.Coimbra	50,3	53,1	51,4	51,1	49,2	46,1	50,1	53,9	46,8	216	67	13	4
U.Minho	50,1	52,7	53,3	52,7	49,3	49,5	50,1	45,6	48	219	68	14	5
UNL	48,2	47,7	47,9	48,2	46,5	50,7	50,1	47	48	296	96	23	6
Nº IES										300	99	23	6

3.3.5 Computer Science

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	52,7	58,7	55,4	53,4	52	47,6	53,4	48,8	52,8	146	28	6	1
U.Porto	49,3	50,5	49,6	48,5	49,8	48	55,8	46,7	47,8	211	58	12	2
Nº IES										308	107	20	2

3.3.6 Electrical Engineering

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	54	57,2	54,3	57,3	54,8	50,8	53,7	51,8	52,4	120	26	2	1
U.Porto	50,1	48,7	49,4	49,4	51,2	51,5	55,7	45,6	51,7	200	53	6	2
U.Minho	47,6	45	46,1	46,5	47,4	55,4	49,6	44,2	48,9	287	93	12	3
Nº IES										300	100	14	3

3.3.7 Environment / Ecology

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	58,6	67,3	71,8	57,1	62,1	43,5	60,6	52,7	53,1	84	30	4	1
U.Porto	55,2	63,9	59,7	55,4	58,4	43,7	58,5	51,2	52,3	111	43	5	2
U.Aveiro	52,5	62	58	51,8	59	39,9	58,5	46,3	47,5	160	61	7	3
U.Coimbra	47,9	52,8	50,6	48,2	49,6	42	49,9	46	44,7	293	119	17	4
Nº IES										301	122	17	4

3.3.8 Geosciences

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	55	57,2	60,1	54,1	55,7	48,8	57,1	51,8	54,5	103	36	3	1
Nº IES										300	132	11	1

3.3.9 Materials Science

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Aveiro	50,2	54,1	50,2	52,7	48	48,6	50	48,5	49,2	180	35	2	1
U.Porto	48,7	49,5	49,1	48,9	48	48,3	51,3	46,5	48,8	228	57	5	2
U.Minho	48,3	51,7	49,4	49,6	47,6	46	44,8	45,5	50,7	245	65	6	3
U.Lisboa	47,9	52,1	50,2	49	47,2	44,1	46,1	46,8	47,1	267	75	9	4
Nº IES										302	88	13	4

3.3.10 Mathematics

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	59,9	74,7	68,4	63,3	61,7	44,5	65,4	51,2	52,4	60	18	2	1
U.Aveiro	49,6	49,6	48,8	50,8	47,9	51,2	52,8	51,9	44,9	222	88	15	2
Nº IES										300	131	20	2

3.3.11 Mechanical Engineering

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	59,1	64,3	59	65,6	57,9	50,7	58,3	59,3	56	66	19	1	1
U.Porto	57,5	59,2	53,5	64,5	58,8	57,8	61,2	55,7	51,8	80	22	2	2
U.Aveiro	53,4	48	45,6	55,1	49	77,6	55,5	54,4	47,7	145	43	6	3
U.Minho	49,1	46,4	46,5	48,2	47,4	58,1	49,9	52	46,3	237	79	10	4
U.Coimbra	47,7	49,2	48,4	50	46,8	52,3	44,3	44,6	46,3	294	103	15	5
Nº IES										300	105	15	5

3.3.12 Pharmacology &Toxicology

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Porto	59,2	63,9	62,7	60,9	62,9	47,2	60	53,1	61,7	67	22	3	1
U.Lisboa	52,5	53,3	57,6	51,2	53,9	45,8	57,2	51,5	49,8	159	58	5	2
U.Coimbra	49,8	51,1	49,5	50,3	49,9	47,7	54,4	49	47,6	221	86	10	3
Nº IES										302	122	18	3

3.3.13 Physics

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	52,9	60	58	53,4	52,8	44,3	54,4	52,5	47,6	155	64	6	1
U.Minho	48,3	43,9	44,2	47,3	45,2	68,7	48,4	47,1	46	286	131	15	2
Nº IES										304	136	17	2

3.3.14 Plant & Animal Science

	Total Score	11 Years Articles	Current Articles	11 Years Citations	Current Citations	Ave. Citations	H-Index	HiCi Papers	Hi-Impact Journal Articles	World Rank	Euro Rank	Iberoam Rank	PT Rank
U.Lisboa	58,7	62,6	62,3	58,8	67,4	45,4	67,3	52,7	55,8	70	17	4	1
U.Porto	53	57,7	57	53	56,3	42,8	55,8	45,7	55,8	134	56	11	2
U.Aveiro	49	48,3	50,1	46,7	51,3	44	53	46,4	52,3	246	112	20	3
UNL	47,9	44,7	44,5	47,6	45,7	63	47,2	50,1	43,1	292	134	25	4
U.Algarve	47,9	48,9	50,6	47,9	48,9	46	50,1	47	44,8	292	134	25	4
Nº IES										308	139	29	5

Anexo 1 - Metodologia do NTU Ranking by Field

Field Categories[5]

"The National Taiwan University Ranking (NTU Ranking) categorizes subfields into six fields, namely Agriculture, Clinical Medicine, Engineering, Life Sciences, Natural Sciences and Social Sciences. Table 1 shows the six fields and the respective subfields. Tables 2-7 list the detailed subject categories of each subfield."

Table 1 Field Categories

Field	Subfield
Agriculture	Agricultural Sciences
	Environment / Ecology
	Plant & Animal Science
Clinical Medicine	Clinical Medicine
	Psychiatry
Engineering	Computer Science
	Engineering
	Materials Science
Life Sciences	Biology & Biochemistry
	Immunology
	Microbiology
	Molecular Biology & Genetics
	Neuroscience & Behavior
	Pharmacology & Toxicology
Natural Sciences	Chemistry
	Geosciences
	Mathematics
	Physics
	Space Science
	Psychology
Social Sciences	Economics & Business
	Social Sciences

Table 2 Agriculture Subfields

Field	Subfield
Agricultural Sciences	Agricultural Economics & Policy
	Agricultural Engineering
	Agriculture, Dairy & Animal Science
	Agriculture, Multidisciplinary
	Agriculture, Soil Science
	Agronomy
	Food Science & Technology
	Horticulture
	Nutrition & Dietetics
Environment/Ecology	Biodiversity Conservation
	Ecology
	Environmental Sciences
	Water Resources
Plant & Animal Science	Entomology
	Fisheries
	Forestry
	Marine & Freshwater Biology
	Mycology
	Ornithology
	Plant Sciences
	Veterinary Sciences
	Zoology

[5] *In* http://nturanking.lis.ntu.edu.tw/methodoloyg/fieldCategories acedido a 6 de setembro de 2018.

Table 3 Clinical Medicine Subfields

Field	Subfield
Clinical Medicine	Allergy
	Andrology
	Anesthesiology
	Audiology & Speech Language Pathology
	Cardiac & Cardiovascular Systems
	Clinical Neurology
	Critical Care Medicine
	Dentistry, Oral Surgery & Medicine
	Dermatology
	Emergency Medicine
	Endocrinology & Metabolism
	Gastroenterology & Hepatology
	Geriatrics & Gerontology
	Gerontology
	Health Care Sciences & Services
	Hematology
	Integrative & Complementary Medicine
	Medical Ethics
	Medical Informatics
	Medical Laboratory Technology
	Medicine, General & Internal
	Medicine, Legal
	Medicine, Research & Experimental
	Nursing
	Obstetrics & Gynecology
	Oncology
	Ophthalmology
	Orthopedics
	Otorhinolaryngology
	Pediatrics
	Peripheral Vascular Disease
	Radiology, Nuclear Medicine & Medical Imaging
	Rehabilitation
	Respiratory System
	Rheumatology
	Surgery
	Transplantation
	Tropical Medicine
	Urology & Nephrology
	Primary Health Care
Psychiatry	Psychiatry

Table 4 Engineering Subfields

Field	Subfield
Computer Science	Computer Science, Artificial Intelligence
	Computer Science, Cybernetics
	Computer Science, Hardware & Architecture
	Computer Science, Information Systems
	Computer Science, Interdisciplinary Applications
	Computer Science, Software Engineering
	Computer Science, Theory & Methods
Engineering	Automation & Control Systems
	Construction & Building Technology
	Energy & Fuels
	Engineering, Aerospace
	Engineering, Biomedical
	Engineering, Chemical
	Engineering, Civil
	Engineering, Electrical & Electronic
	Engineering, Environmental
	Engineering, Geological
	Engineering, Industrial
	Engineering, Manufacturing
	Engineering, Marine
	Engineering, Mechanical
	Engineering, Multidisciplinary
	Engineering, Ocean
	Engineering, Petroleum
	Green & Sustainable Science & Technology
	Instruments & Instrumentation
	Mechanics
	Mining & Mineral Processing
	Robotics
	Telecommunications
	Thermodynamics
	Transportation
	Transportation Science & Technology
Materials Science	Materials Science, Biomaterials
	Materials Science, Ceramics
	Materials Science, Characterization & Testing
	Materials Science, Coatings & Films
	Materials Science, Composites
	Materials Science, Multidisciplinary
	Materials Science, Paper & Wood
	Materials Science, Textiles
	Metallurgy & Metallurgical Engineering

Table 5 Life Sciences Subfields

Field	Subfield
Biology & Biochemistry	Anatomy & Morphology
	Biochemical Research Methods
	Biology
	Biophysics
	Evolutionary Biology
	Mathematical & Computational Biology
	Parasitology
	Pathology
	Physiology
	Reproductive Biology
Immunology	Immunology
	Infectious Diseases
	Virology
Microbiology	Biotechnology & Applied Microbiology
	Microbiology
	Microscopy
Molecular Biology & Genetics	Biochemistry & Molecular Biology
	Cell Biology
	Developmental Biology
	Genetics & Heredity
	Cell & Tissue Engineering
Neuroscience & Behavior	Behavioral Sciences
	Neuroimaging
	Neurosciences
Pharmacology & Toxicology	Pharmacology & Pharmacy
	Substance Abuse
	Toxicology

Table 6 Natural Sciences Subfields

Field	Subfield
Chemistry	Chemistry, Analytical
	Chemistry, Applied
	Chemistry, Inorganic & Nuclear
	Chemistry, Medicinal
	Chemistry, Multidisciplinary
	Chemistry, Organic
	Chemistry, Physical
	Crystallography
	Electrochemistry
	Polymer Science
	Spectroscopy
Geosciences	Geochemistry & Geophysics
	Geography
	Geography, Physical
	Geology
	Geosciences, Multidisciplinary
	Imaging Science & Photographic Technology
	Limnology
	Meteorology & Atmospheric Sciences
	Mineralogy
	Oceanography
	Paleontology
	Remote Sensing
	Soil Science
Mathematics	Mathematics
	Mathematics, Applied
	Mathematics, Interdisciplinary Applications
	Statistics & Probability
	Logic
Physics	Acoustics
	Nanoscience & Nanotechnology
	Nuclear Science & Technology
	Optics
	Physics, Applied
	Physics, Atomic, Molecular & Chemical
	Physics, Condensed Matter
	Physics, Fluids & Plasmas
	Physics, Mathematical
	Physics, Multidisciplinary
	Physics, Nuclear
	Physics, Particles & Fields
Space Science	Astronomy & Astrophysics
Psychology	Psychology
	Psychology, Applied
	Psychology, Biological
	Psychology, Clinical
	Psychology, Developmental
	Psychology, Educational
	Psychology, Experimental
	Psychology, Mathematical
	Psychology, Multidisciplinary
	Psychology, Psychoanalysis
	Psychology, Social

Table 7 Social Sciences Subfields

Field	Subfield
Economics & Business	Business
	Business, Finance
	Economics
	Industrial Relations & Labor
	Management
	Operations Research & Management Science
Social Sciences, General	Area Studies
	Asian Studies
	Communication
	Criminology & Penology
	Demography
	Education & Educational Research
	Education, Scientific Disciplines
	Education, Special
	Environmental Studies
	Ergonomics
	Ethics
	Ethnic Studies
	Family Studies
	Film, Radio, Television
	Folklore
	Health Policy & Services
	Hospitality, Leisure Sport & Tourism
	Information Science & Library Science
	International Relations
	Law
	Planning and Development
	Political Science
	Public Administration
	Public, Environmental & Occupational Health
	Social Issues
	Social Sciences, Biomedical
	Social Sciences, Interdisciplinary
	Social Sciences, Mathematical Methods
	Social Work
	Sociology
	Sport Sciences
	Urban Studies
	Women's Studies

Anexo 2 - Metodologia do NTU Ranking by Subject

Subject Categories [6]

"The National Taiwan University Ranking (NTU Ranking) ranks each university by 14 subjects, namely Agricultural Sciences, Environment/Ecology, Plant & Animal Science, Computer Science, Chemical Engineering (including Energy & Fuels), Civil Engineering (including Environmental Engineering), Electrical Engineering, Mechanical Engineering, Materials Science, Pharmacology & Toxicology, Chemistry, Geosciences, Mathematics, and Physics.
Tables 1-14 list the detailed subject categories.

Table 1 Agricultural Sciences Subject Categories

Subject	Subject Category
Agricultural Sciences	Agricultural Economics & Policy
	Agricultural Engineering
	Agriculture, Dairy & Animal Science
	Agriculture, Multidisciplinary
	Agriculture, Soil Science
	Agronomy
	Food Science & Technology
	Nutrition & Dietetics
	Horticulture

Table 2 Environment / Ecology Subject Categories

Subject	Subject Category
Environment/Ecology	Biodiversity Conservation
	Ecology
	Environmental Sciences
	Water Resources

Table 3 Plant & Animal Science Subject Categories

Subject	Subject Category
Plant & Animal Science	Entomology
	Fisheries
	Forestry
	Marine & Freshwater Biology
	Mycology
	Ornithology
	Plant Sciences
	Veterinary Sciences
	Zoology

Table 4 Computer Science Subject Categories

Subject	Subject Category
Computer Science	Computer Science, Artificial Intelligence
	Computer Science, Cybernetics
	Computer Science, Hardware & Architecture
	Computer Science, Information Systems
	Computer Science, Interdisciplinary Applications
	Computer Science, Software Engineering
	Computer Science, Theory & Methods

[6] *In* http://nturanking.lis.ntu.edu.tw/methodoloyg/subjectCategories acedido a 6 de setembro de 2018.

Table 5 Chemical Engineering Subject Categories

Subject	Subject Category
Chemical Engineering, including Energy & Fuels	Energy & Fuels
	Engineering, Chemical
	Engineering, Petroleum
	Green & Sustainable Science & Technology
	Polymer Science

Table 6 Civil Engineering Subject Categories

Subject	Subject Category
Civil Engineering, including Environmental Engineering	Construction & Building Technology
	Engineering, Civil
	Engineering, Environmental
	Engineering, Geological
	Engineering, Ocean
	Transportation
	Transportation Science & Technology

Table 7 Electrical Engineering Subject Categories

Subject	Subject Category
Electrical Engineering	Automation & Control Systems
	Engineering, Biomedical
	Engineering, Electrical & Electronic
	Instruments & Instrumentation
	Telecommunications

Table 8 Mechanical Engineering Subject Categories

Subject	Subject Category
Mechanical Engineering	Engineering, Aerospace
	Engineering, Manufacturing
	Engineering, Marine
	Engineering, Mechanical
	Mining & Mineral Processing
	Mechanics
	Robotics
	Thermodynamics
	Engineering, Industrial

Table 9 Materials Science Subject Categories

Subject	Subject Category
Materials Science	Materials Science, Biomaterials
	Materials Science, Ceramics
	Materials Science, Characterization & Testing
	Materials Science, Coatings & Films
	Materials Science, Composites
	Materials Science, Multidisciplinary
	Materials Science, Paper & Wood
	Materials Science, Textiles
	Metallurgy & Metallurgical Engineering

Table 10 Pharmacology & Toxicology Subject Categories

Subject	Subject Category
Pharmacology & Toxicology	Pharmacology & Pharmacy
	Substance Abuse
	Toxicology

Table 11 Chemistry Subject Categories

Subject	Subject Category
Chemistry	Chemistry, Analytical
	Chemistry, Applied
	Chemistry, Inorganic & Nuclear
	Chemistry, Medicinal
	Chemistry, Multidisciplinary
	Chemistry, Organic
	Chemistry, Physical
	Crystallography
	Electrochemistry
	Spectroscopy

Table 12 Geosciences Subject Categories

Subject	Subject Category
Geosciences	Geochemistry & Geophysics
	Geography
	Geography, Physical
	Geology
	Geosciences, Multidisciplinary
	Imaging Science & Photographic Technology
	Limnology
	Meteorology & Atmospheric Sciences
	Mineralogy
	Oceanography
	Paleontology
	Remote Sensing
	Soil Science

Table 13 Mathematics Subject Categories

Subject	Subject Category
Mathematics	Mathematics
	Mathematics, Applied
	Mathematics, Interdisciplinary Applications
	Statistics & Probability
	Logic

Table 14 Physics Subject Categories

Subject	Subject Category
Physics*	Acoustics
	Nanoscience & Nanotechnology
	Nuclear Science & Technology
	Optics
	Physics, Applied
	Physics, Atomic, Molecular & Chemical
	Physics, Condensed Matter
	Physics, Fluids & Plasmas
	Physics, Mathematical
	Physics, Multidisciplinary
	Physics, Nuclear
	Physics, Particles & Fields
	Astronomy & Astrophysics

Note: *Physics includes Space Science. “