A Universidade do Porto no
The Academic Ranking of World Universities (ARWU)
Shanghai Ranking 2023

Sumário

A Universidade do Porto no The Academic Ranking of World Universities (ARWU) – Shanghai Ranking 2023

http://www.shanghairanking.com/

1. Metodologia do ARWU - Shanghai ranking

"The Academic Ranking of World Universities (ARWU) was first published in June 2003 by the Center for World-Class Universities (CWCU), Graduate School of Education (formerly the Institute of Higher Education) of Shanghai Jiao Tong University, China, and updated on an annual basis. Since 2009 the Academic Ranking of World Universities (ARWU) has been published and copyrighted by ShanghaiRanking Consultancy. ShanghaiRanking Consultancy is a fully independent organization on higher education intelligence and not legally subordinated to any universities or government agencies. ARWU uses six objective indicators to rank world universities, including the number of alumni and staff winning Nobel Prizes and Fields Medals, number of highly cited researchers selected by Clarivate, number of articles published in journals of Nature and Science, number of articles indexed in Science Citation Index - Expanded™ and Social Sciences Citation Index™ in the Web of Science™, and per capita performance of a university. More than 2500 universities are actually ranked by ARWU every year and the best 1000 are published."[1]

"1. **Candidate Universities**

ARWU considers every university that has any Nobel Laureates, Fields Medalists, Highly Cited Researchers, or papers published in Nature or Science. In addition, universities with a significant amount of papers indexed by Science Citation Index-Expanded (SCIE) and Social Science Citation Index (SSCI) are also included. In total, more than 2500 universities are actually ranked, and the best 1000 are published.

2. Ranking Criteria and Weights

Universities are ranked by several academic or research performance indicators, including alumni and staff winning Nobel Prizes and Fields Medals, highly cited researchers, papers published in Nature and Science, papers indexed in major citation indices, and the per capita academic performance of an institution. For each indicator, the highest scoring institution is assigned a score of 100, and other institutions are calculated as a percentage of the top score. The data distribution for each indicator is examined for any significant distorting effect; standard statistical techniques are used to adjust the indicator if necessary. Scores for each indicator are weighted as shown below to arrive at a final overall score for an institution. The highest scoring institution is assigned a score of 100, and other institutions are calculated as a percentage of the top score.

3. Indicators and Weights for ARWU

Criteria	Indicator	Code	Weight
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals	Alumni	10%
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals	Award	20%
	Highly cited researchers	HiCi	20%
Research Output	Papers published in Nature and Science*	N&S	20%
	Papers indexed in Science Citation Index-expanded and Social Science Citation Index	PUB	20%
Per Capita Performance	Per capita academic performance of an institution	PCP	10%

* For institutions specialized in humanities and social sciences such as London School of Economics, N&S is not considered, and the weight of N&S is relocated to other indicators.

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[1] https://www.shanghairanking.com/rankings/arwu/2023 acedido 24/08/2023.

4. Definition of Indicators

Indicator	Definition
Alumni	Number of the alumni of an institution winning Nobel Prizes and Fields Medals. Alumni are defined as those who obtain bachelor's, master's or doctoral degrees from the institution. Different weights are set according to the periods of obtaining degrees. The weight is 100% for alumni obtaining degrees after 2011, 90% for alumni obtaining degrees in 2001-2010, 80% for alumni obtaining degrees in 1991-2000, and so on, and finally 10% for alumni obtaining degrees in 1921-1930. If a person obtains more than one degree from an institution, the institution is considered once only.
Award	Number of the staff of an institution winning Nobel Prizes in Physics, Chemistry, Medicine and Economics and Fields Medal in Mathematics. Staff is defined as those who work at an institution at the time of winning the prize. Different weights are set according to the periods of winning the prizes. The weight is 100% for winners after 2021, 90% for winners in 2011-2020, 80% for winners in 2001-2010, 70% for winners in 1991-2000, and so on, and finally 10% for winners in 1931-1940. If a winner is affiliated with more than one institution, each institution is assigned the reciprocal of the number of institutions. For Nobel prizes, if a prize is shared by more than one person, weights are set for winners according to their proportion of the prize.
HiCi	Number of Highly Cited Researchers selected by Clarivate. The Highly Cited Researchers list issued in January 2023 was used for the calculation of HiCi indicator in ARWU 2023. Only the primary affiliations of Highly Cited Researchers are considered.
N&S	Number of papers published in Nature and Science between 2018 and 2022. To distinguish the order of author affiliation, a weight of 100% is assigned for corresponding author affiliation, 50% for first author affiliation (second author affiliation if the first author affiliation is the same as corresponding author affiliation), 25% for the next author affiliation, and 10% for other author affiliations. When there are more than one corresponding author address, we consider the first corresponding author address as the corresponding author address and consider other corresponding author addresses as first author address, second author address etc. following the order of the author addresses. Only publications of 'Article' type are considered.
PUB	Number of papers indexed in Science Citation Index-Expanded and Social Science Citation Index in 2022. Only publications of 'Article' type are considered. When calculating the total number of papers of an institution, a special weight of two was introduced for papers indexed in Social Science Citation Index.
PCP	Weighted scores of the above five indicators divided by the number of full-time equivalent academic staff. If the number of academic staff for institutions of a country cannot be obtained, the average number of academic staff for world top 1000 universities will be used for all institutions in this country. For ARWU 2023, the numbers of full-time equivalent academic staff are obtained for institutions in USA, UK, China, France, Canada, Japan, Italy, Australia, Netherlands, Sweden, Switzerland, Belgium, South Korea, Czechia, New Zealand, Saudi Arabia, Spain, Austria, Norway, Poland, Israel etc.

5. Data Sources

Indicator	Data Source
Nobel Prize Laureates	http://nobelprize.org/
Fields Medalists	http://www.mathunion.org/
Highly Cited Researchers	https://clarivate.com/highly-cited-researchers/
N&S	http://www.webofscience.com/
Web of Science Papers	http://www.webofscience.com/
Others	Number of academic staff data is obtained from national or regional agencies such as National Ministry of Education, National Bureau of Statistics, National Association of Universities and Colleges, National Rector's Conference.

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Apesar de a informação não ser usada na elaboração do Shanghai Ranking, desde 2011, a Universidade do Porto responde ao inquérito Global Research University Profiles (GRUP) do The Center for World-Class Universities (CWCU) of Shanghai Jiao Tong University, atualmente do ShanghaiRanking Consultancy.

[2] https://www.shanghairanking.com/methodology/arwu/2023 acedido 24/08/2023

2. Evolução[3] das posições da U.Porto no ARWU – Shanghai ranking

Posições da Universidade do Porto no ARWU Shanghai ranking

	Ranking Mundial	Ranking Europeu	Ranking Ibero-americano	Ranking Nacional
2007	403-510	173-208		1**
2008	402-503	169-210	13*	1**
2009	402-501	171-208	13*	1**
2010	401-500	169-204	15	1**
2011	301-400	124-164	9	1
2012	301-400	124-158	8	1
2013	301-400	127-164	8-17	1-2
2014	301-400	122-160	9-17	2
2015	301-400	123-158	10-17	2
2016	301-400	122-158	8-18	2
2017	301-400	123-157	8-15	2
2018	301-400	121-157	9-16	2
2019	301-400	118-157	10-15	2
2020	301-400	113-150	10-16	2
2021	301-400	112-147	9-16	2
2022	201-300	77-110	3-10	1-2
2023	201-300	74-106	2-7	1-2

* A par com a PUC do Chile, a Universidade do Chile, a UNESP, a UFRGS, a Universidade de Granada, a Universidade de Lisboa, a Universidade de Sevilha e a Universidade de Saragoça.

** A par com a Universidade de Lisboa

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[3] Dados de 2007 a 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; dados de 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022 e 2023 retirados de http://www.shanghairanking.com/ respetivamente em 03/11/2014, 15/08/2015, 15/08/2016, 16/08/2017, 05/09/2018, 02/09/2019, 01/09/2020, 01/09/2021, 15/08/2022 e 24/08/2023.

***Scores* da Universidade do Porto no ARWU Shanghai ranking**

	Total Score	Alumni	Award	HiCi	N&S	PUB	PCP
2014	n/d	0	0	0	9,4	42,7	20,3
2015	n/d	0	0	0	10,7	42,2	21,1
2016	n/d	0	0	0	11,8	43,2	22,1
2017	n/d	0	0	0	11,3	44,6	22,9
2018	n/d	0	0	0	11,8	44,6	18,9
2019	n/d	0	0	0	11,7	45,1	18,7
2020	n/d	0	0	0	10,2	45,8	19,1
2021	n/d	0	0	7,3	10,6	46,9	20,0
2022	n/d	0	0	13,7	11,6	47,5	21,6
2023	n/d	0	0	11,4	11,1	44,1	20,6

n/d - O Total Score só é apresentado para as 100 primeiras universidades.
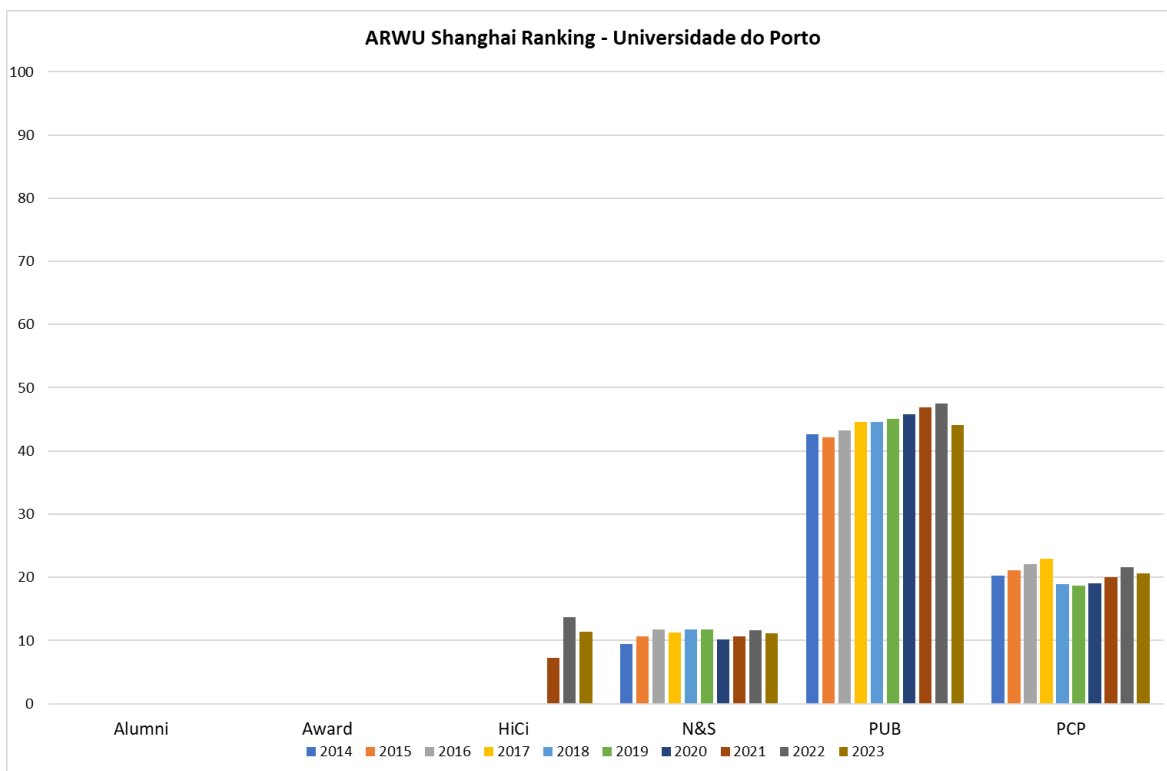
3. Universidades portuguesas no ARWU Shanghai ranking 2023

Posições das Universidades portuguesas no ARWU Shanghai ranking 2023

	Ranking Mundial					Ranking Europeu					Ranking Ibero-americano					Ranking Nacional				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
University of Lisbon	151-200	151-200	201-300	201-300	201-300	57-79	57-77	78-111	77-110	74-106	2-3	2-3	3-8	3-10	2-7	1	1	1	1-2	1-2
University of Porto	301-400	301-400	301-400	201-300	201-300	118-157	113-150	112-147	77-110	74-106	10-15	10-16	9-16	3-10	2-7	2	2	2	1-2	1-2
University of Aveiro	601-700	501-600	601-700	401-500	401-500	236-271	186-224	226-260	150-185	147-182	35-43	26-34	34-42	15-24	14-22	6	4-5	5-6	3-4	3-5
University of Coimbra	501-600	501-600	501-600	501-600	401-500	194-235	186-224	185-225	186-221	147-182	27-34	26-34	25-33	25-31	14-22	5	4-5	4	5-6	3-5
University of Minho	401-500	401-500	401-500	401-500	401-500	158-193	151-185	148-184	150-185	147-182	16-26	17-25	17-24	15-24	14-22	3-4	3	3	3-4	3-5
NOVA University of Lisbon	401-500	601-700	601-700	501-600	601-700	158-193	225-255	226-260	186-221	213-247	16-26	35-41	34-42	25-31	28-37	3-4	6	5-6	5-6	6
Nº de IES	1000	1000	1000	1000	1000	372	364	362	361	346	80	80	77	79	71	6	6	6	6	6

Cand. – Instituições que não constavam no top 500 (em 2017 e 2018), mas estavam listadas no lote das universidades candidatas ao ranking.

***Scores* das Universidades portuguesas no ARWU Shanghai ranking 2023**

	Total Score 2022/2023	Alumni		Award		HiCi		N&S		PUB		PCP	
		2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023
University of Lisbon	n/d	0	0	6,8	6,5	9,7	11,4	11,8	12,5	53,1	47,8	18,8	18
University of Porto	n/d	0	0	0	0	13,7	11,4	11,6	11,1	47,5	44,1	21,6	20,6
University of Aveiro	n/d	0	0	0	0	9,7	13,2	3,7	3,9	32,2	29,7	23,1	23,3
University of Coimbra	n/d	0	0	0	0	0	6,6	7,3	8,2	35,5	32,3	18,1	18
University of Minho	n/d	0	0	0	0	9,7	11,4	6,2	6,1	30,9	27,3	18,2	17,2
NOVA University Lisbon	n/d	0	0	0	0	6,8	6,6	7	7,2	27,7	24,3	16,3	15

n/d - O Total Score só é apresentado para as 100 primeiras universidades.

ARWU Shanghai Ranking - Universidades Portuguesas