

# Universidade do Porto no Times Higher Education World University Rankings

<http://www.timeshighereducation.co.uk/world-university-rankings/>

## I. Metodologia do THE WUR e participação da U.Porto

"The Times Higher Education World University Rankings are the only global university performance tables to judge research-led universities across all their core missions - teaching, research, knowledge transfer and international outlook.

We employ 13 carefully calibrated performance indicators to provide the most comprehensive and balanced comparisons, which are trusted by students, academics, university leaders, industry and governments.

The methodology for the 2014-2015 World University Rankings is identical to that used since 2011-2012, offering a year-on-year comparison based on true performance rather than methodological change.

Our 13 performance indicators are grouped into five areas:

- Teaching: the learning environment (worth 30 per cent of the overall ranking score)
- Research: volume, income and reputation (worth 30 per cent)
- Citations: research influence (worth 30 per cent)
- Industry income: innovation (worth 2.5 per cent)
- International outlook: staff, students and research (worth 7.5 per cent).

[...]

Scores

To calculate the overall rankings, "Z-scores" were created for all data sets except for the results of the academic reputation survey.

The calculation of Z-scores standardises the different data types on a common scale and allows fair comparisons between different types of data - essential when combining diverse information into a single ranking.

Each data point is given a score based on its distance from the mean average of the entire data set, where the scale is the standard deviation of the data set.

The Z-score is then turned into a "cumulative probability score" to arrive at the final totals.

If University X has a cumulative probability score of 98, for example, then a random institution from the same data distribution will fall below the institution 98 per cent of the time.

For the results of the reputation survey, the data are highly skewed in favour of a small number of institutions at the top of the rankings, so we added an exponential component to increase differentiation between institutions lower down the scale, a method we have retained for the 2014-2015 tables.

Data collection

Institutions provide and sign off their institutional data for use in the rankings.

On the rare occasions when a particular data point is missing - which affects only low-weighted indicators such as industrial income - we enter a low estimate between the average value of the indicators and the lowest value reported: the 25th percentile of the other indicators.

By doing this, we avoid penalising an institution too harshly with a "zero" value for data that it overlooks or does not provide, but we do not reward it for withholding them.

[...]

### **International outlook: People, research (7.5%)**

This category looks at diversity on campus and to what degree academics collaborate with international colleagues on research projects - both signs of how global an institution is in its outlook.

The ability of a university to attract undergraduates and postgraduates from all over the planet is key to its success on the world stage: this factor is measured by the ratio of international to domestic students and is worth 2.5 per cent of the overall score.

The top universities also compete for the best faculty from around the globe. So in this category we adopt a 2.5 per cent weighting for the ratio of international to domestic staff.

In the third international indicator, we calculate the proportion of a university's total research journal publications that have at least one international co-author and reward higher volumes.

This indicator, which is also worth 2.5 per cent, is normalised to account for a university's subject mix and uses the same five-year window as the "Citations: research influence" category.

### **Research: Volume, income, reputation (30%)**

This category is made up of three indicators. The most prominent, given a weighting of 18 per cent, looks at a university's reputation for research excellence among its peers, based on the 10,000-plus responses to our annual academic reputation survey.

This category also looks at university research income, scaled against staff numbers and normalised for purchasing-power parity.

This is a controversial indicator because it can be influenced by national policy and economic circumstances.

But income is crucial to the development of world-class research, and because much of it is subject to competition and judged by peer review, our experts suggested that it was a valid measure.

This indicator is fully normalised to take account of each university's distinct subject profile, reflecting the fact that research grants in science subjects are often bigger than those awarded for the highest-quality social science, arts and humanities research. It is given a weighting of 6 per cent.

The research environment category also includes a simple measure of research productivity - research output scaled against staff numbers.

We count the number of papers published in the academic journals indexed by Thomson Reuters per academic, scaled for a university's total size and also normalised for subject. This gives an idea of an institution's ability to get papers published in quality peer-reviewed journals.

This indicator is worth 6 per cent overall.

### **Citations: Research influence (30%)**

Our research influence indicator is the flagship. Weighted at 30 per cent of the overall score, it is the single most influential of the 13 indicators, and looks at the role of universities in spreading new knowledge and ideas.

We examine research influence by capturing the number of times a university's published work is cited by scholars globally. This year, our data supplier Thomson Reuters examined more than 50 million citations to 6 million journal articles, published over five years. The data are drawn from the 12,000 academic journals indexed by Thomson Reuters' Web of Science database and include all indexed journals published between 2008 and 2012.

Citations to these papers made in the six years from 2008 to 2013 are also collected.

The citations help show us how much each university is contributing to the sum of human knowledge: they tell us whose research has stood out, has been picked up and built on by other scholars and, most importantly, has been shared around the global scholarly community to push further the boundaries of our collective understanding, irrespective of discipline.

The data are fully normalised to reflect variations in citation volume between different subject areas. This means that institutions with high levels of research activity in subjects with traditionally high citation counts do not gain an unfair advantage.

We exclude from the rankings any institution that publishes fewer than 200 papers a year to ensure that we have enough data to make statistically valid comparisons.

### **Industry income: Innovation (2.5%)**

A university's ability to help industry with innovations, inventions and consultancy has become a core mission of the contemporary global academy.

This category seeks to capture such "knowledge transfer" by looking at how much research income an institution earns from industry, scaled against the number of academic staff it employs.

"Industry income: innovation" suggests the extent to which businesses are willing to pay for research and a university's ability to attract funding in the competitive commercial marketplace - useful indicators of institutional quality.

The category is worth 2.5 per cent of the overall ranking score.

### **Teaching: The learning environment (30%)**

This category employs five separate performance indicators designed to provide a clear sense of the teaching and learning environment of each institution from both the student and the academic perspective. The dominant indicator here uses the results of the world's largest invitation-only academic reputation survey.

Thomson Reuters carried out its latest reputation survey - a worldwide poll of experienced scholars - in spring 2014.

It examined the perceived prestige of institutions in both research and teaching. There were just over 10,000 responses, statistically representative of global higher education's geographical and subject mix.

The results of the survey with regard to teaching make up 15 per cent of the overall rankings score.

The teaching and learning category also employs a staff-to-student ratio (an institution's total student numbers) as a simple (and admittedly crude) proxy for teaching quality.

The proxy suggests that where there is a healthy ratio of students to staff, the former will get the personal attention they require from the institution's faculty.

This measure is worth 4.5 per cent of the overall ranking score.

The teaching category also examines the ratio of doctoral to bachelor's degrees awarded by each institution.

We believe that institutions with a high density of research students are more knowledge-intensive and that the presence of an active postgraduate community is a marker of a research-led teaching environment valued by undergraduates and postgraduates alike.

The doctorate-to-bachelor's ratio is worth 2.25 per cent of the overall ranking score.

The teaching category also uses data on the number of doctorates awarded by an institution, scaled against its size as measured by the number of academic staff it employs.

As well as giving a sense of how committed an institution is to nurturing the next generation of academics, a high proportion of postgraduate research students also suggests the provision of teaching at the highest level that is thus attractive to graduates and effective at developing them.

Undergraduates also tend to value working in a rich environment that includes postgraduates. This indicator is normalised to take account of a university's unique subject mix, reflecting the different volume of doctoral awards in different disciplines, and makes up 6 per cent of overall scores.

The final indicator in the category is a simple measure of institutional income scaled against academic staff numbers.

This figure, adjusted for purchasing-power parity so that all nations may compete on a level playing field, indicates the general status of an institution and gives a broad sense of the infrastructure and facilities available to students and staff. This measure is worth 2.25 per cent overall.

[...]

### Criteria

No institution can be included in the overall World University Rankings unless it has published a minimum of 200 research papers a year over the five years we examine.

But for the six subject tables, the threshold drops to 100 papers a year for subjects that generate a high volume of publications and 50 a year in subjects such as social sciences where the volume tends to be lower.

Although we apply some editorial discretion, we generally expect an institution to have at least 10 per cent of its staff working in the relevant discipline in order to include it in the subject table.

The majority of institutions in Thomson Reuters' Global Institutional Profiles database, which fuels the rankings, provide detailed subject-level information. In rare cases where such data are not supplied, institutions are either excluded or public sources are used to inform estimates."<sup>1</sup>

Desde 2010, a Universidade do Porto participa no GIPP - *Global Institutional Profiles Project* da Thomson Reuters<sup>2</sup> fornecendo dados sobre estudantes, docentes, investigadores e financiamento. Até 2013, era reportada a lista de variantes de nome da Instituição na *Web of Science*; este ano, esse pedido foi substituído pela lista de "Divisions" e *Affiliated Institutions*.

Para a edição deste ano, a informação foi solicitada em março e validada em maio.

## II. Posição das Universidades portuguesas no THE WUR 2014

	Teaching	Research	Citations	Industry income	International outlook	Overall score <sup>3</sup>	Rank
	30%	30%	30%	2,5%	7,5%		
U.Lisboa	30,1	22,8	44,8	33,9	46,8	33,7	351-400
U.Minho	20,2	16,2	60,6	44,5	49,7	33,9	351-400

<sup>1</sup> <http://www.timeshighereducation.co.uk/world-university-rankings/2014-15/world-ranking/methodology> Acedido 2 outubro de 2014.

<sup>2</sup> <http://ip-science.thomsonreuters.com/globalprofilesproject/>

<sup>3</sup> O *Overall score* foi calculado usando as ponderações dos 5 indicadores.

### III. Universidade do Porto

#### Evolução dos 5 indicadores globais

	Teaching	Research	Citations	Industry income	International outlook	Overall score	Rank
	30%	30%	30%	2,5%	7,5%		
2011 <sup>4</sup>	17,7	13,0	43,9	33,7	42,0	26,4	301-350
2012 <sup>4</sup>	26,2	21,1	50,2	36,2	43,2	33,4	351-400
2013 <sup>4</sup>	20,5	17,8	47,6	36,7	43,9	30,0	351-400
2014 <sup>5</sup>	27	20	44	36	43	31,4 [30,9-31,8]	--

Como os valores de 2014 foram retirados do Perfil onde são apresentados sem casa decimal, optou-se por acrescentar o intervalo do *Overall score*. O limite mínimo de 2014 é superior ao valor de 2013.

#### Evolução dos 13 indicadores

	2011 <sup>6</sup>	2012 <sup>7</sup>	2013 <sup>8</sup>	2014 <sup>5</sup>
<b>TEACHING INDICATORS</b>				
Academic staff / students	34	37	35	41
Doctoral degrees awarded / undergraduate degrees awarded	34	41	40	51
Doctoral degrees awarded / academic staff	24	35	29	49
Teaching reputation	8	18	9	10
Institutional income / academic staff	19	24	27	26
<b>RESEARCH INDICATORS</b>				
Papers / academic and research staff (normalized)	23	39	45	47
Research income / academic staff (normalized)	24	23	25	28
Research reputation	6	15	6	8
Normalized Citation Impact (country adjusted)	44	51	48	44
<b>INDUSTRY INDICATORS</b>				
Research income from industry / academic staff	34	36	37	36
<b>INTERNATIONAL OUTLOOK INDICATORS</b>				
Academic staff - international / academic staff	19	24	24	23
Students - international / students	30	35	36	38
Papers - international co-author / papers	76	71	72	68

<sup>4</sup> "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=55GoHdmanvlg](https://sigarra.up.pt/up/pt/conteudos_service.conteudos_cont?pct_id=20113&pv_cod=55GoHdmanvlg)

<sup>5</sup> Thomson Reuters, *Global Institutional Profiles Project 2014 Profile: University of Porto*.

<sup>6</sup> Thomson Reuters, *Global Institutional Profiles Project 2011 Profile: University of Porto*.

<sup>7</sup> Thomson Reuters, *Global Institutional Profiles Project 2012 Profile: University of Porto*.

<sup>8</sup> Thomson Reuters, *Global Institutional Profiles Project 2013 Profile: University of Porto*.

#### IV. Entradas e saídas em 2014<sup>9</sup>

##### Universidades no THE WUR 2014 sem presença em 2013

Institution	Location	Overall score	Rank2014
Scuola Normale Superiore di Pisa	Italy	61.9	63
University of Victoria	Canada	47.7	173
Syracuse University	United States	47.3	177
Sabanci University	Turkey	46.9	182
William & Mary	United States	Data withheld by THE	201-225
Technical University of Berlin	Germany	Data withheld by THE	226-250
Western University	Canada	Data withheld by THE	226-250
Universität Würzburg	Germany	Data withheld by THE	226-250
York University	Canada	Data withheld by THE	226-250
University of Bremen	Germany	Data withheld by THE	251-275
Federico Santa María Technical University	Chile	Data withheld by THE	251-275
University of Hawaii at Manoa	United States	Data withheld by THE	251-275
University of New Mexico	United States	Data withheld by THE	251-275
University of Witwatersrand	South Africa	Data withheld by THE	251-275
Indian Institute of Science	India	Data withheld by THE	276-300
Lappeenranta University of Technology	Finland	Data withheld by THE	276-300
University of Macau	China	Data withheld by THE	276-300
Illinois Institute of Technology	United States	Data withheld by THE	301-350
University of Marrakech Cadi Ayyad	Morocco	Data withheld by THE	301-350
University of Nebraska Medical Center	United States	Data withheld by THE	301-350
Novosibirsk State University	Russia	Data withheld by THE	301-350
University of Stuttgart	Germany	Data withheld by THE	301-350
Wayne State University	United States	Data withheld by THE	301-350
Zhejiang University	China	Data withheld by THE	301-350
Aston University	United Kingdom	Data withheld by THE	351-400
Curtin University	Australia	Data withheld by THE	351-400
Ewha Womans University	Republic of Korea	Data withheld by THE	351-400
Indian Institute of Technology, Bombay	India	Data withheld by THE	351-400
Isfahan University of Technology	Iran	Data withheld by THE	351-400
University of Lisbon	Portugal	Data withheld by THE	351-400
University of Rome III	Italy	Data withheld by THE	351-400
Royal College of Surgeons in Ireland	Republic of Ireland	Data withheld by THE	351-400
University of Seoul	Republic of Korea	Data withheld by THE	351-400
University of Turku	Finland	Data withheld by THE	351-400
Waseda University	Japan	Data withheld by THE	351-400
Washington State University	United States	Data withheld by THE	351-400
University of Western Sydney	Australia	Data withheld by THE	351-400
Wuhan University of Technology	China	Data withheld by THE	351-400
Wuhan University	China	Data withheld by THE	351-400

<sup>9</sup> <http://www.timeshighereducation.co.uk/world-university-rankings/2014-15/world-ranking> e <http://www.timeshighereducation.co.uk/world-university-rankings/2013-14/world-ranking>. Acedido 2 de outubro de 2014

### Universidades no THE WUR 2013 sem presença em 2014

Institution	Location	Overall score	Rank2013
Georgia Health Sciences University	United States	Data withheld by THE	226-250
University of Alaska-Fairbanks	United States	Data withheld by THE	276-300
Heriot-Watt University	United Kingdom	Data withheld by THE	301-350
Keele University	United Kingdom	Data withheld by THE	301-350
National Central University	Taiwan	Data withheld by THE	351-400
China Medical University, Taiwan	Taiwan	Data withheld by THE	351-400
University of Guelph	Canada	Data withheld by THE	351-400
Leibniz Universität Hannover	Germany	Data withheld by THE	351-400
Indian Institute of Technology, Delhi	India	Data withheld by THE	351-400
Indian Institute of Technology, Kanpur	India	Data withheld by THE	351-400
Indian Institute of Technology, Kharagpur	India	Data withheld by THE	351-400
National University of Ireland, Maynooth	Republic of Ireland	Data withheld by THE	351-400
Johannes Kepler Universität Linz	Austria	Data withheld by THE	351-400
King Abdulaziz University	Saudi Arabia	Data withheld by THE	351-400
King Saud University	Saudi Arabia	Data withheld by THE	351-400
Liverpool John Moores University	United Kingdom	Data withheld by THE	351-400
Loughborough University	United Kingdom	Data withheld by THE	351-400
University of Maryland, Baltimore County	United States	Data withheld by THE	351-400
Old Dominion University	United States	Data withheld by THE	351-400
University of Porto	Portugal	Data withheld by THE	351-400
University of Rovira i Virgili	Spain	Data withheld by THE	351-400
University of Surrey	United Kingdom	Data withheld by THE	351-400
University of Tartu	Estonia	Data withheld by THE	351-400
University of Tasmania	Australia	Data withheld by THE	351-400
Temple University	United States	Data withheld by THE	351-400
Polytechnic University of Valencia	Spain	Data withheld by THE	351-400
University of Vigo	Spain	Data withheld by THE	351-400
University of Wyoming	United States	Data withheld by THE	351-400

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 2 de outubro de 2014