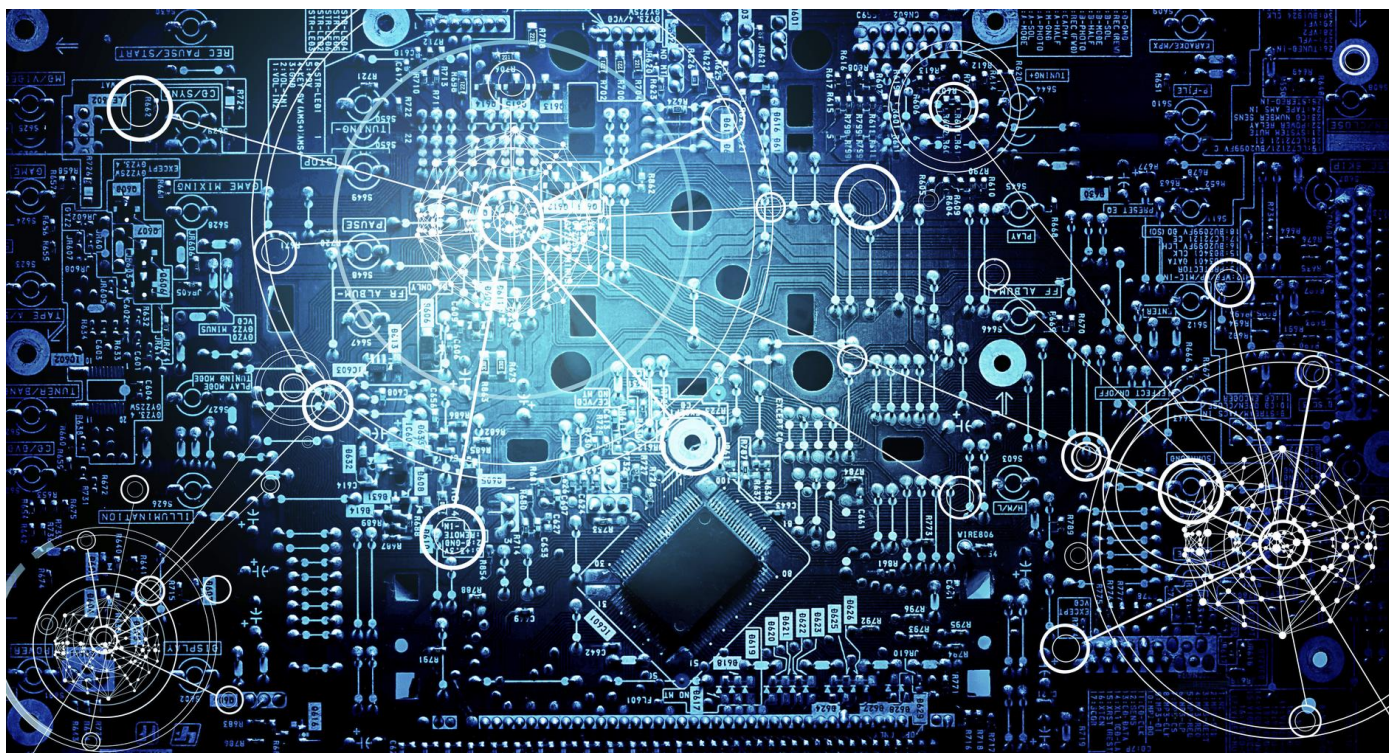


METHODOLOGY FOR THE TIMES HIGHER EDUCATION EUROPE TEACHING RANKINGS 2019

June 2019



Times Higher Education Europe Teaching Rankings:

Times Higher Education is the data provider underpinning university excellence in every continent across the world. As the company behind the world's most influential university ranking, and with almost five decades of experience as a source of analysis and insight on higher education, we have unparalleled expertise on the trends underpinning university performance globally. Our data and benchmarking tools are used by many of the world's most prestigious universities to help them achieve their strategic goals.

The annual Times Higher Education (THE) Europe Teaching Rankings (ETR), started in 2017, aims to provide the definitive list of the best universities in Europe, evaluated across four key pillars of Resources, Engagement, Outcomes and Environment. Times Higher Education's data is trusted by governments and universities and is a vital resource for students, helping them choose where to study.

To help demonstrate the integrity of the Rankings, we have asked PricewaterhouseCoopers LLP UK ("PwC") to undertake independent limited assurance over our application of the specific procedures (i) - (xiii). Their independent limited assurance opinion on our application of specific procedures (i) – (xiii) is set out on page 16 and 17 of this document.

The methodology is divided into the four sections which are outlined below and discussed in detail in the remainder of the document:

- 1) Data collection and sources**
- 2) Criteria for exclusion, inclusion, and data processing**
- 3) Calculation, scoring and ranking**
- 4) Publication and reporting**

Details of the methodology applied within each section are set out in red boxes. The specific procedures within the methodology subject to limited assurance are marked with the symbol "Ω" and highlighted in bold.

Important links:

THE ETR 2019 Final Rankings: <https://www.timeshighereducation.com/rankings/europe-teaching/2019>

THE ETR 2019 Methodology: <https://www.timeshighereducation.com/world-university-rankings/europe-teaching-rankings-2019-methodology>

Directors' Statement:

This document (the "Methodology") sets out our end-to-end process for generating the THE Europe Teaching Rankings 2019 (the "Rankings"). As directors and management of Times Higher Education, we state that we have followed our Methodology and correctly applied the specific procedures denoted by (i) - (xiii) as marked with the symbol "Ω".

Signed:



Print:TREVOR BARRATT.....

Role:CEO.....

Date:25/06/2019.....

For and on behalf of THE World Universities Insights Limited

Summary of the Rankings methodology:

The THE Europe Teaching Rankings score universities across four key pillars that we believe are important when applicants are applying to universities. These are:

- **Resources:** does the university have the right resources?
- **Engagement:** does the university engage its students?
- **Outcomes:** does the university produce good results?
- **Environment:** does the university have a supportive environment?

THE uses 14 carefully calibrated performance metrics, listed below, to provide comprehensive and balanced comparisons. The methodology makes use of data sourced by THE, Elsevier, Higher Education Statistics Agency (HESA) and THE's European Student Survey as described in section 1. Core university data submitted by the universities is validated by THE. Each of the metrics are normalised and weighted according to our methodology to generate the final Rankings as set out in the calculation of metrics section.

The 14 performance metrics are grouped into the four pillars:

- **Resources**
 - Staff-to-student ratio
 - Papers-to-staff ratio
 - Quality of services
- **Engagement**
 - Student engagement
 - Student recommendation
 - Student interaction
 - Links to the labour market
- **Outcomes**
 - Academic reputation
 - Success rate
 - Skills development
- **Environment**
 - Gender balance of academic staff
 - Gender balance of students
 - International students
 - Erasmus student mobility

1) Data collection and sources

Student Survey

THE gained insight into the perceptions of currently enrolled students about their university, across any subject and level of study. The survey closed in March 2019 and was distributed to universities by Streetbees or self-administered by individual institutions under THE guidelines. We used responses from our 2018 and 2019 student surveys.

Following analysis of the samples we decided to rebalance the student perceptions survey responses according to the gender split of each institution's student population.

To perform this we have reweighted the average scores for each university according to the average score by gender and the actual gender balance.

Further to that, we have normalised the scores in order to take into account the impact of country or region level distribution in student survey responses.

All student survey responses were gender-weighted and normalised according to the gender split of each institution's student population and the distribution of scores in each country or region. Ω^i

Elsevier

Bibliometric data

The bibliometric indicator used for the Rankings is calculated as the total scholarly output (articles, reviews, conference papers, books and book chapters) between 2013 and 2017, divided by number of staff (academic + research staff). Total scholarly output is calculated by Elsevier from their Scopus and/or SciVal databases of worldwide scholarly citations and output.

Academic reputation survey

An annual survey was sent to a sample of academics randomly selected by Elsevier asking them to nominate the best universities for teaching and research: up to 15 in the world and up to 6 in their country. They were also asked to nominate up to 10 additional universities they regard as the best for teaching and research, based on their own direct experience, either through meeting or working with them. If there were any institutions they wanted to include but which couldn't be found in the available list, academics were able to enter up to 10 institutions globally and in their country (for teaching and research) in a free text box. Only the teaching votes coming from academics who are affiliated with European universities were considered for the metric calculation in these Rankings. We used the total teaching votes from our 2018 and 2019 reputation surveys.

The academic reputation score for a university is the number of mentions they received for the 2017 and 2018 surveys in the world and country teaching sections from respondents associated with a European institution. Where a university received no votes, they were allocated a zero score.

Total reputation score for each university was calculated based on the aggregate of individual respondent data obtained from Elsevier. Ω^{ii}

Institutional data – self-submitted on the THE Portal

A named representative from each institution submits and authorises their institutional data for use in the Rankings Ω^{iii} , via THE's designated online portal, with confirmations that they have:

- Provided true and accurate information for their institution for 2017; and
- Understood and complied with the THE terms and conditions → <https://www.timeshighereducation.com/terms-and-conditions>;

Prior to submission of data within the portal, the draft data undergoes certain automatic validation checks to ensure that data is complete and accurate, for review by the named representative. Ω^{iv}

Times Higher Education will not self-submit data for an institution without positive confirmation from the named representative of the institution. Ω^{v}

2) Criteria for exclusion, inclusion, and data processing

Exclusion and inclusion criteria

There are six key criteria for universities to be included in the Rankings:

1. University must offer courses and programmes leading to officially recognised higher education degrees such as bachelor or master or equivalent degrees:
 - Focused on more than one narrow subject area; and
 - Not post-graduate only; and
 - In a European OECD developed country.

AND

2. Have 3,000 or more first degree students

AND

3. Have their data submitted by a university representative through the THE Portal.

AND

4. Have completed all fields in the Portal submission OR agreed to apply lowest score for metrics where mandatory fields were left blank or supplied data did not match definitions.

AND

5. Not have any outstanding issues resulting from THE's manual validation on submitted Portal data.

Management reviews and approves all institution submissions data for appropriateness and accuracy, based on prior year values and gaps within datasets. Ω^{vi}

AND

6. Have at least 60 eligible and verified survey responses.

Universities meeting the six key inclusion criteria are included in the rankings. Ω^{vii}

Data collected through either stream of the student perceptions survey (Streetbees distributed or self-distributed by institutions) individually or the sum thereof must reach 60 eligible and verified responses for the university to be included in the Rankings.

Universities with fewer than 60 respondents to the survey were excluded from the Rankings. Ω^{viii}

Data processing and mapping

All datasets provided by Streetbees and Elsevier are accurately mapped using the unique five-digit university identifier.

The datasets used in the rankings have been accurately mapped by university name and ID. Institution-level bibliometric (Scopus and/or SciVal) and reputation survey data obtained from Elsevier is mapped to THE institution data via THE's institution ID. Ω^{ix}

3) Calculation, scoring and ranking

Calculation of metrics

The pre-weighted indicators are calculated for each university Ω^x based on the definitions below:

1. Resources

Staff-to-student ratio

- The staff-to-student ratio is defined as total FTE number of staff employed in an academic post divided by FTE number of students in all years and of all programmes that lead to a degree, certificate, university's credit or other qualification.

Papers-to-staff ratio

- This metric captures the number of papers per member of staff and is a measure of research presence. It is calculated as the total scholarly output between 2013 and 2017 (from Elsevier) divided by the total number of academic and research staff. This metric uses a logarithmic scale to incorporate outliers prior to scaling.

Quality of services

- This metric is generated from the average score per institution (gender-weighted and normalised) from the average scores of two questions in the THE European Student Survey, which asked students to assess their access to learning materials and the quality of their learning environment.

2. Engagement

Student engagement

- This metric is generated from the average score per institution (gender-weighted and normalised) from the average scores of four questions in the THE European Student Survey:
 1. To what extent does the student's university support critical thinking?;
 2. To what extent does the teaching support reflection on, or making connections between, the things that the student has learned?;
 3. To what extent does the teaching support apply the student's learning to the real world?; and
 4. To what extent do the classes taken challenge the student?

Student recommendation

- This metric is generated from the average score per institution (gender-weighted and normalised) from the score of one question in the THE European Student Survey:
 1. If a friend or family member were considering going to university, based on your experience, how likely or unlikely are you to recommend your university to them?

Student interaction

- This metric is generated from the average score per institution (gender-weighted and normalised) from the average scores of two questions in the THE European Student Survey:
 1. To what extent does the student have the opportunity to interact with faculty and teachers?; and
 2. To what extent does the university provide opportunities for collaborative learning?

Links to the labour market

- This metric is generated from the average score per institution (gender-weighted and normalised) from the score of one question in the THE European Student Survey in which students were asked to what extent the institution provided opportunities for students to learn about and make connection to the world of work.

3. Outcomes

Academic reputation

- This metric is the number of votes obtained from the Elsevier reputation survey from the last two years, and is calculated as the number of global teaching votes from European respondents of the reputation survey and number of country teaching votes from European respondents to the reputation survey. Only non-0 values will be standardised, and universities that received no votes are scored a zero for this metric.

Success rate

- This is the percentage of students graduating within 5 years. The metric captures the institutional success of students persisting to completion of their educational goals. It is calculated by the number of first degrees awarded to all those students who have not dropped out by the end of year 1, have not transferred to a different Higher Education provider and remained in full time study for the entire duration of their degree divided by the number of persons who started a first degree 5 years prior to the graduation year.

Skills development

- This metric is generated from the average score per institution (gender-weighted and normalised) from the score of one question in the THE European Student Survey which asked students whether the teaching at their university supported them to learn skills that will be useful in the world of work.

4. Environment

Gender Balance of academic staff

- This metric looks at the gender balance of academic staff at a university to give a sense of whether the institution provides a diverse and inclusive learning environment for students. Universities with a 50:50 ratio of female to male academic staff are rewarded with a top score of 100, while those that are skewed towards one gender receive a lower score.

Gender balance of students

- This metric looks at the gender balance of students at a university to give a sense of whether the institution provides a diverse and inclusive learning environment for students. Universities with a 50:50 ratio of female to male students are rewarded with a top score of 100, while those that are skewed towards one gender receive a lower score. The scores are produced for the three subject areas separately and then brought together with a weighted mean based on the number of students per subject area.

International students

- This metric captures the proportion of international students on campus. International students are those whose nationality differs from the country where the institution is based. The metric is calculated as the FTE number of international students (minus the number of inbound Erasmus students) divided by the total FTE number of students.

European student mobility

- This category looks at the total number of Erasmus students, those students attending a university on an Erasmus+ exchange program for at least one semester and those students registered at an institution, who have attended another institution abroad for at least one semester on an Erasmus+ exchange program and/or an Erasmus+ traineeship scheme. Erasmus or Erasmus+ is the European Union student exchange programme to support education, training, youth and sport in Europe. The metric is calculated as the mean of two sub-metrics: number of inbound students divided by the total FTE number of students and number of outbound students (study + traineeship) divided by the total FTE number of students.

Moving from a series of specific data points to metrics, and finally to a total score for a university, requires us to match values that represent fundamentally different data. To do this we use a standardisation approach for many of the indicators, and then combine the indicators in the proportions indicated below.

The standardisation approach we use is based on the distribution of data within a particular indicator, where we calculate a cumulative probability function, and evaluate where a particular university's indicator sits within that function. A cumulative probability score of X in essence tells us that a university with random values for that indicator would fall below that score X per cent of the time.

For all indicators except those based on the survey results, success rate and gender-balance staff, we calculate the cumulative probability function using a version of Z-scoring. Because Z-scoring requires the distribution to be Gaussian, in some cases it is required to perform the normalization of the indicator prior to scoring.

Weightings of metrics to final scores and rankings

The 14 performance metrics representing the four pillars are weighted according to THE's assessment of relative importance.

Once the final population of universities and indicators has been prepared, the scores for each university are generated by weighting the metrics and the Final Rankings are calculated Ω^x according to the following percentage breakdowns:

Pillar	Metric	% weighting
1. Resources (20)	Staff per student	7.5
	Papers per staff	7.5
	Quality of services	5
2. Engagement (35)	Student recommendation	10
	Student engagement	10
	Links to labour market	5
	Student interaction	10
3. Outcomes (20)	Academic reputation	10
	Skills development	5
	Success rate	5
4. Environment (25)	Gender balance of staff	7
	Gender balance of students	7
	International students	5.5
	European student mobility	5.5

4) Publication and reporting

Final rankings preparation

All universities were ranked overall and are published in the final Rankings table on the THE website. On the website, the overall score and pillar scores are displayed.

Precise overall and individual pillar scores are shown for the universities ranked in the top 50. Banded overall scores are presented for the universities ranked in bands (e.g. from 51 to 201+). Precise pillar scores are displayed for each university regardless of the overall score being banded or not.

For the universities ranked 1 – 50 overall, an individual rank position is listed. The next universities are assigned to bands of 25 (e.g. 51-75, 76-100, 101-125, 126-150). Subsequent to these, a banding of 50 applies (e.g. 151-200). Beyond that, 201+ is assigned to all universities. Universities in each band are sorted alphabetically.

Review and sign off

The Rankings are formally signed off by THE World Universities Insights Limited management prior to being published in print and online.

The Rankings results are reviewed and signed off by THE's Chief Data Officer. Ω^{xii}

Reporting

The Rankings for the top 50 universities and banding allocation below top 50 are accurately reported on the THE website. Ω^{xiii}

The Rankings are listed together with the Rankings methodology on the Times Higher Education website at: <https://www.timeshighereducation.com/rankings/europe-teaching/2019>

Times Higher Education procedures subject to independent assurance

Procedure number	Methodology section	Procedure description
i	1) Data collection and sources	All student survey responses were gender-weighted and normalised according to the gender split of each institution's student population and the distribution of scores in each country or region.
ii	1) Data collection and sources	Total reputation score for each university was calculated based on the aggregate of individual respondent data obtained from Elsevier.
iii	1) Data collection and sources	A named representative from each institution submits and authorises their institutional data for use in the Rankings.
iv	1) Data collection and sources	Prior to submission of data within the portal, the draft data undergoes certain automatic validation checks to ensure that data is complete and accurate, for review by the named representative.
v	1) Data collection and sources	Times Higher Education will not self-submit data for an institution without positive confirmation from the named representative of the institution.
vi	2) Criteria for exclusion, inclusion, and data processing	Management reviews and approves all institution submissions data for appropriateness and accuracy, based on prior year values and gaps within datasets
vii	2) Criteria for exclusion, inclusion, and data processing	Universities meeting the six key inclusion criteria are included in the rankings.
viii	2) Criteria for exclusion, inclusion, and data processing	Universities with fewer than 60 respondents to the survey were excluded from the Rankings.
ix	2) Criteria for exclusion, inclusion, and data processing	The datasets used in the rankings have been accurately mapped by university name and ID. Institution-level bibliometric (Scopus and/or SciVal) and reputation survey data obtained from Elsevier is mapped to THE institution data via THE's institution ID.
x	3) Calculation, ranking and scoring	The pre-weighted indicators are calculated for each university.
xi	3) Calculation, ranking and scoring	Once the final population of universities and indicators has been prepared, the scores for each university are generated by weighting the metrics and the Final Rankings are calculated.
xii	4) Publication and reporting	The Rankings results are reviewed and signed off by THE's Chief Data Officer.
xiii	4) Publication and reporting	The Rankings for the top 50 universities and banding allocation below top 50 are accurately reported on the THE website.



Independent assurance report to the directors of THE World Universities Insights Limited for the Times Higher Education Europe University Rankings 2019

The directors of THE World Universities Insights Limited engaged us to perform an assurance engagement over the application of specific procedures (i) – (xiii) in production and reporting of the top 50 universities by rank, and banding allocation below the top 50 for the THE Europe University Rankings 2019 (the “Rankings”).

Our conclusion

Based on the results of our work, nothing has come to our attention that causes us to believe that THE World Universities Insights Limited management has not correctly applied, in all material respects, the specific procedures (i) – (xiii) outlined in their report.

This conclusion is to be read in the context of what is stated below.

Scope of our work

We have performed a limited assurance engagement over the procedures (i) – (xiii) as marked with the symbol “Ω” set out in the report (“THE’s procedures”) within the THE Europe University Rankings 2019 methodology (the ‘Methodology’), which outlines THE’s production and reporting of the Rankings.

Our work has been performed in accordance with the agreement between us dated 29 November 2018.

Professional standards applied and level of assurance

We performed a limited assurance engagement over application of THE’s procedures in accordance with International Standard on Assurance Engagements 3000 (Revised) *Assurance Engagements other than Audits and Reviews of Historical Financial Information* issued by the International Auditing and Assurance Standards Board.

Our independence and quality control

We complied with the Institute of Chartered Accountants in England and Wales (ICAEW) Code of Ethics, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

We also apply International Standard on Quality Control (UK) 1 and accordingly maintain a comprehensive system of quality control including documented policies and standards regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Inherent limitations

Our assurance procedures are limited to assessing the application of THE’s procedures and are subject to the following inherent limitations:

- Reliance has been placed on data obtained from third parties. These data sets include:
 - Bibliometric data for universities provided by Elsevier (part of RELX Group); and
 - Academic reputational survey response data provided by Elsevier (part of RELX Group).
- Our responsibility is to assess whether management has correctly applied specific procedures (i) – (xiii) of the Methodology, not to express any view on the resulting rankings.

Work performed

Our limited assurance procedures primarily comprised:

- Examining the Methodology and THE's procedures in order to obtain an understanding, and assessing any key assumptions and limitations.
- Obtaining an understanding of the third party surveys and data.
- Assessment of management's application of THE's procedures for:
 - Data collection and sources;
 - Criteria for exclusion, inclusion, and data processing;
 - Calculation, scoring and ranking; and
 - Publication and reporting.
- Testing accurate reporting of institutions in the THE Europe Teaching Rankings 2019 report and on the Times Higher Education website.
- Enquiries of relevant management.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Directors' responsibilities

The directors of THE World Universities Insights Limited are responsible for:

- establishing an appropriate Methodology and specific procedures for producing the Rankings and reporting the results on THE's website;
- designing, implementing and monitoring policies, activities, processes and controls to comply with the procedures;
- their Methodology, including the application of the procedures set out in this Methodology;
- supporting the Directors' Statement with sufficient evidence, including documentation; and
- the maintenance and integrity of THE's website.

Our responsibilities

We are responsible for:

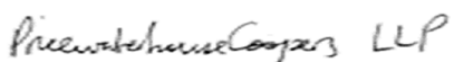
- planning and performing the engagement to obtain evidence to support our assurance conclusion;
- forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained, on management's application of THE's procedures as described in the report; and
- reporting our conclusion to the directors of THE World Universities Insights Limited.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Intended users and purpose

This report is produced in accordance with the terms of our agreement dated 29 November 2018 and is intended solely for the use and benefit of the Board of Directors of THE World Universities Insights Limited, and solely for the purpose of reporting to them on the application of THE's procedures within the Methodology in preparation and publication of the Rankings and no other purpose. We do not, in giving our conclusion, accept or assume responsibility (legal or otherwise) or accept liability for, or in connection with, any other purpose for which our report including the conclusion may be used, or to any other person to whom our report is shown or into whose hands it may come, and no other persons shall be entitled to rely on our conclusion.

We permit the disclosure of our report, in full only and in the company of the Methodology, to enable the directors to demonstrate that they have discharged their governance responsibilities by commissioning an independent assurance report over procedures (i) – (xiii) of the Methodology, without assuming or accepting any responsibility or liability to any third parties on our part. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the directors of THE World Universities Insights Limited for our work or this report save where terms are expressly agreed and with our prior consent in writing.



PricewaterhouseCoopers LLP
Chartered Accountants
London, UK
25 June 2019