METHODOLOGY FOR THE *TIMES HIGHER EDUCATION* ARAB UNIVERSITY RANKINGS 2021

July 2021

Times Higher Education Arab University Rankings (AUR):

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)* World University Rankings (WUR), started in 2010, aims to provide the definitive list of the best universities, evaluated across five key areas of Teaching, Research, Citations, International Outlook and Industry Income. *Times Higher Education*'s data is trusted by governments and universities and is a vital resource for students, helping them choose where to study.

Within our World University Rankings, Arab universities are improving their underlying scores across a range of metrics compared to the rest of the world, in particular in citations and reputation metrics. However, this improvement can be lost within the World University Rankings due to the growth of the ranking.

We believe that it is important that Arab universities are able to understand their performance and strengths in an objective way within the structure of universities across the Arab region using measurements based solely on those universities.

As such, an original methodology was designed for the Arab University Rankings, based on the World University Rankings' methodology, coupled with important adjustments calibrated to reflect the features of the Arab world universities. The inaugural Arab University Rankings are published in July 2021.

Important links:

THE AUR 2021 Final Rankings: http://www.timeshighereducation.com/world-university-rankings/2021/arab-university-rankings

THE AUR 2021 Methodology: www.timeshighereducation.com/world-university-rankings/arab-university-rankings-2021-methodology

Directors' Statement:

This document (the "Methodology") sets out our end-to-end process for generating the THE Arab University Rankings 2021 (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) - (xii) and marked with the symbol "Ω".

Signed: 

Print: Duncan Ross

Role: Chief Data Officer, *Times Higher Education*

Date: 7 July 2021

For and on behalf of *THE* World Universities Insights Limited

Summary of the Rankings methodology:

The methodology for the *Times Higher Education* Arab University Rankings is looking at research-intensive universities across all their core missions: teaching, research, research influence, society (including industry income and impact), and international outlook. We use 16 carefully calibrated performance indicators, listed below, to provide the most comprehensive and balanced comparisons, trusted by students, academics, university leaders, industry and governments.

The basic methodology for the Arab University Rankings is similar to that used for the World University Rankings but we have made important changes to some of the underlying data sources, notably deriving the reputation data from an Arab region-specific survey. The citation score is based on the Field-Weighted Citation Impact 75th percentile for each institution – as opposed to the mean average for each institution as used in the WUR. We believe that this gives a more stable measure over time and prevents the distorting effect of a few papers with very high numbers of citations.

Other adjustments include a research collaboration metric between universities within the Arab world and the addition of two measures based on participation and performance respectively in the *THE* Impact Rankings.

Finally, because universities in the Arab world face both differing current contexts and a long and established academic history that differs from the world as a whole, the strengths of the various measures are altered in order to better reflect the strengths of Arab universities.

The inaugural 2021 Arab University Rankings are published in July 2021.

The performance indicators are grouped into five areas:

- **Teaching** (the learning environment)
    - Reputation Survey – Teaching
    - Students to Academic Staff Ratio
    - Doctorates Awarded to Undergraduate Degrees Awarded
    - Doctorates Awarded to Academic Staff
    - Institutional Income to Academic Staff

- **Research** (volume, income and reputation)
    - Reputation Survey – Research
    - Research Income to Academic Staff
    - Publications to Staff (Academic Staff + Research Staff)

- **Citations** (research influence)
    - Field Weighted Citation Impact

- **Society**
    - Research Income from Industry & Commerce to Academic Staff
    - Impact Rankings participation
    - Impact Rankings performance

- **International** (staff, students and research)
    - Proportion of International Students
    - Proportion of International Academic Staff
    - International co-authorship (Proportion of International Publications out of the Publications Total)
    - Collaboration within the Arab world

1) Data collection and sources

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[i], via *THE*'s designated online portal, with confirmations that they have:

- Provided true and accurate information for their institution for 2019; and
- Understood and complied with the *THE* terms and conditions → https://www.timeshighereducation.com/terms-and-conditions;

Times Higher Education will not self-submit data for an institution without positive confirmation from the named representative of the institution. Ω[ii]

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[iii]

Elsevier

Bibliometric data

We examine research influence by capturing the number of times a university's published work is cited by scholars globally. This year, our bibliometric data supplier Elsevier examined more than 108 million citations to 14.4 million journal articles, article reviews, conference proceedings, books and book chapters published over five years. The data include more than 24,600 academic journals indexed by Elsevier's Scopus database and all indexed publications between 2016 and 2020. Citations to these publications made in the six years from 2016 to 2021 are also collected.

Citations data is a score per institution calculated by Elsevier. Elsevier provide the Field-Weighted Citation Impact (FWCI) score, per subject and overall.

The FWCI score indicates how the number of citations received by an entity's publications compares with the average number of citations received by all other similar publications. 'Similar publications' are understood to be publications in the Scopus database that have the same publication year, type, and discipline, as defined by the Scopus journal classification system.

A FCWI of 1.00 indicates the global average.

The Citations performance of an institution is determined by calculating the 75th percentile of the FWCI score of all of its publications in scope. Where a publication involves multiple institutions, each institution receives full credit for its performance.

We also collect the total number of publications overall, plus the total number of publications with international co-authorship per institution and the total number of publications with collaboration with universities in the Arab world, providing they meet our 'sufficient publications' criteria (detailed in section 2).

The citations help to 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 expand the boundaries of human understanding, irrespective of discipline.

Academic reputation survey

A survey was sent to a sample of selected academics in the Arab region, in which we ask them to nominate the universities that they perceive to be the best for Teaching and/or Research in their field. Academics were asked to nominate up to 10 institutions for Teaching and up to 10 institutions for Research in the Arab region.

The academic reputation score for a university is the number of mentions they received in the Arab reputation survey in the teaching and research sections. 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. Ω[iv]

Reference data

THE incorporates reference datasets into its model to convert country-level data provided by institutions via the portal (e.g. research income in a local currency) to a single comparable dataset for all institutions.

The sources of this data are:

- The Her Majesty Revenue and Customs (HMRC) monthly datasets: [https://www.gov.uk/government/publications/hmrc-exchange-rates-for-2019-monthly], which provides accurate foreign exchange rates to convert datasets into GBP and then back into their local currency if an institution reports in a foreign currency;
- The World Bank Purchase Power Parity (PPP) dataset [http://data.worldbank.org/indicator/PA.NUS.PPP], which is used to convert the local currency to common-PPP-scaled USD. PPP is used to exemplify the differing currency strengths in each country while allowing for easy cross-country comparisons; and
- Where data for a country doesn't exist in the World Bank database, a dataset from the IMF [https://www.imf.org/en/Publications/WEO/weo-database/2021/April] or UN data is used [http://data.un.org/Data.aspx?d=WDI&f=Indicator_Code%3APA.NUS.PPP].

2) Criteria for exclusion, inclusion, and data processing

Exclusion and inclusion criteria

1. They must have supplied "overall" numbers for the ranking year.

AND

2. They must not be featured in the custom exclusions list. Institutions that have requested not to participate in the ranking or that are not eligible for other institution-specific reasons have been excluded.

AND

3. They must not have more than two of the critical values (academic staff, international academic staff, research staff, students, international students, undergraduate degrees awarded, doctorates awarded, institutional income, research income, research income from industry and commerce) as null (either marked by the institution as "unavailable" or "withheld"). Null values will cause any metric based on that value to also be null.

AND

4. They must mark at least one subject as applicable. If no applicable subjects have been reported the institution is excluded.

AND

5. They must be based in one of the following countries: Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, Yemen.

AND

6. They are required to publish more than 500 relevant publications over the previous five years.

Universities meeting all six key inclusion criteria above are included in the rankings. Ωv

Universities not meeting the last criteria will not be included in the rankings. They will be listed as "Reporters" and they will not have any scores.

Data adjustments

After the deadline of the submission of data via the Portal by institutions, ***management review and approve all institution submissions data for appropriateness and accuracy, based on prior year values and gaps within datasets*** Ω[vi] as described below.

On the occasions where an institution does not provide a data point which would result in the inability to generate a metric, the missing metric may be calculated by imputing the value as the higher of:

- The average of the two lowest metric scores for an institution; or
- The minimum score awarded across the whole population for that metric.

Data processing pre-rankings

Data provided by institutions for financial information is converted into USD using international PPP exchange rates Ω[vii] (provided by the World Bank), for use in the Rankings calculation.

The datasets used in the rankings have been accurately mapped by university name and ID. Institution-level bibliometric (Scopus and/or SciVal) obtained by Elsevier is mapped to THE institution data via THE's institution ID. Ω[viii]

3) Calculation, scoring and ranking

Calculation of metrics

There are 16 indicators, each combined into 5 categories, or "pillars", which are weighted according to relative importance.

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

1. *Teaching (the learning environment)*

Reputation survey

- To enhance our understanding of reputation we conducted an Arab region-specific survey which yielded over 12,000 votes; this has provided us with a far more accurate picture of university reputation across the Arab region. Only academics who have been cited in published papers were invited to participate. The most recent Arab Reputation Survey that underpins this metric was carried out from February to April 2021. It examined the perceived prestige of institutions in teaching. This metric is the total number of teaching votes obtained from this survey. Universities that received no votes are scored a zero for this metric.

Academic Staff-to-student ratio

- The academic staff-to-student ratio is defined as total full time equivalent (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 credit or other qualification. This variable is normalised after calculation.

Doctorates-awarded-to-bachelor-degrees-awarded ratio

- This metric is generated by dividing the total number of doctorates awarded by the total number of undergraduate degrees awarded. This variable is normalised after calculation.

Doctorates-awarded-to-academic-staff ratio

- 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. This metric is generated by dividing the total subject weighted doctorates, by the total subject weighted number of academic staff. This metric takes into account an institution's unique subject mix, reflecting that the volume of doctoral awards varies by discipline. This variable is normalised after calculation.

Institutional income per staff

- This measure of income indicates an institution's general status and gives a broad sense of the infrastructure and facilities available to students and staff. This metric is generated by dividing the institutional income adjusted to PPP, by the total number of academic staff. This variable is normalised after calculation.

2. *Research (volume, income and reputation)*

Reputation survey

- To enhance our understanding of reputation we conducted an Arab region-specific survey which yielded over 12,000 votes; this has provided us with a far more accurate picture of university reputation across the Arab region. Only academics who have been cited in published papers were invited to participate. The most recent Arab Reputation Survey that underpins this metric was carried out from February to April 2021. It examined the perceived prestige of institutions in research. This metric is the total number of research votes obtained from this survey. Universities that received no votes are scored a zero for this metric.

Research income per staff

- This metric is generated by dividing the total subject weighted research income adjusted for PPP, by the total subject weighted number of academic staff and is normalised after calculation. This is a somewhat controversial indicator because it can be influenced by national policy and economic circumstances. 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 takes account of each institution'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.

Research productivity

- This metric is generated by dividing the total subject weighted number of papers published in the academic journals indexed by Elsevier's Scopus database per scholar, divided by the sum of the total subject weighted number of FTE research staff and FTE academic staff. This metric is normalised after calculation. The indicator gives a sense of the institution's ability to get papers published in quality peer-reviewed journals. The measure includes a method to give credit for cross-subject research that results in papers being published in subjects where a university has no staff. For subjects where there are papers, but not staff, we will reassign the papers to subjects where there are staff. We will do this proportionally according to the number of staff in populated subjects, and according to the median publications per staff for populated subjects. We will have a maximum threshold of the proportion of papers that we are willing to reassign (10% of the total of papers).

3. *Citations (research influence)*

Our research influence indicator looks at universities' role in spreading new knowledge and ideas. We examine research influence by capturing the average number of times a university's published work is cited by scholars globally. We look at the academic journals indexed by Elsevier's Scopus database and all indexed publications between 2016 and 2020. Citations to these publications made in the six years from 2016 to 2021 are also collected. The data is normalised by Elsevier 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.

4. *Society*

Industry income

- An institution's ability to help industry with innovations, inventions and consultancy has become a core mission of the contemporary global academy. This category suggests the extent to which businesses are willing to pay for research and an institution's ability to attract funding in the commercial marketplace – useful indicators of institutional quality. The indicator seeks to capture such knowledge-transfer activity by looking at how much research income an institution earns from industry (adjusted for PPP), divided by the by the total number of FTE academic staff it employs. This variable is normalised after calculation.

Another mission of many higher education institution is to positively impact the wider society and the world. In this ranking, this is defined as their contributions towards the United Nations Sustainable Development Goals (SDG)s, as measured by the THE Impact Rankings. This is measured in two parts:

Impact rankings participation

- Institutions are measured by the number of SDGs for which they are ranked in latest THE Impact Rankings. A maximum of 100 points are awarded to institutions that participate in 4 SDGs or more; eighty points for 3 SDGs; sixty points for 2 SDGs; fifty points for 1 SDG and zero point if they are not ranked.

Impact rankings performance

- Institutions that are ranked in the overall table of the latest THE Impact Rankings receives a metric score which is the same their overall score in the table. Institutions that are not ranked in the overall table receive zero point for this metric.

5. *International (staff, students, research)*

Proportion of 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 total FTE number of international students divided by the total FTE number of students. This variable is normalised after calculation.

Proportion of international staff

- This metric captures the proportion of international academic staff on campus. International staff are those whose nationality differs from the country where the institution is based. The metric is calculated as the total FTE number of international academic staff divided by the total FTE number of academic staff. This variable is normalised after calculation.

International collaboration

- In the third international indicator, we calculate the proportion of an institution's total research journal publications that have at least one international co-author. The metric is generated by dividing the total subject weighted number of publications with at least one international co-author by the total subjected weighted number of publications. This accounts for an institution's subject mix.

International collaboration within the Arab world

- This metric is similar to the international collaboration measure, but only looking at universities within the countries identified in section 2): Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, Yemen.

Normalisation

Moving from a series of specific data points to indicators, and finally to a total score for an institution, requires us to match values that represent fundamentally different data. To do this we use a standardisation approach for each indicator, 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 institution's indicator sits within that function.

For all indicators except the Arab Reputation Survey and Impact Participation, we calculate the cumulative probability function using a version of Z-scoring. The distribution of the data in the Arab Reputation Survey requires us to use an exponential scoring function. Impact Participation is scored by counting the number of Sustainable Development Goals that the universities participated in the Impact 2021 rankings. A maximum score is awarded for 4 SDG submissions.

Weightings of metrics to final scores and rankings

The 16 performance metrics representing the five 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 **according to the following percentage breakdowns**: Ω^x

Pillar	Metric	Weight
Teaching	Teaching reputation	20.0%
	Students to academic staff	4.0%
	Doctorates awarded to undergraduates awarded	2.5%
	Doctorates awarded to academic staff	5.0%
	Institutional income to academic staff	1.5%
Research	Research reputation	25.0%
	Research income to academic staff	3.0%
	Publications to total staff	5.0%
Citations	Citation impact	20.0%
Society	Industry income to academic staff	2.0%
	Impact Rankings participation	2.0%
	Impact Rankings performance	2.0%
International	International students	2.0%
	International staff	2.0%
	International co-authorship	2.0%
	Collaboration within the Arab world	2.0%
		100%

4) Publication and reporting

Final rankings preparation

All institutions 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 scores are shown for the institutions ranked in the top 50 overall. Banded overall scores are presented for the institutions ranked in bands (e.g. from 51 to 60). Precise individual pillar scores are displayed for each ranked institution.

For the institutions ranked 1-50 overall, an individual rank position is listed. The next institutions are assigned to the following bands: 51-60, 61-70, 71-80, 81-90, 91-100, 101+.

Institutions with the 'Reporter' status appear at the end of the table, and they do not have any rank or scores.

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[xi]

Reporting

The Rankings for the top 50 universities and banding allocation below top 50 are accurately reported on the THE website. Ω[xii]

The specific procedures for the Arab University Rankings are located on the *Times Higher Education* website at: www.timeshighereducation.com/world-university-rankings/arab-university-rankings-2021-methodology.

Rule number	Methodology section	Rule description
(i)	Data collection and sources	A named representative from each institution submits and authorises their institutional data for use in the Rankings.
(ii)	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.
(iii)	Data collection and sources	Prior to submission of data within the portal, the draft data undergoes automatic validation checks reviewed by the named representative.
(iv)	Criteria for exclusion, inclusion and data processing	Total reputation score for each university was calculated based on the aggregate of individual respondent data.
(v)	Criteria for exclusion, inclusion and data processing	Universities meeting the six key inclusion criteria are included in the rankings
(vi)	Criteria for exclusion, inclusion and data processing	Management review and approve all institution submissions data for appropriateness and accuracy, based on prior year values and gaps within datasets.
(vii)	Criteria for exclusion, inclusion and data processing	Data provided by institutions for financial information is converted into USD using international PPP exchange rates.
(viii)	Criteria for exclusion, inclusion and data processing	Institution-level bibliometric (Scopus and/or SciVal) obtained by Elsevier is mapped to *THE* institution data via *THE*'s institution ID.
(ix)	Calculation, scoring and ranking	The pre-weighted indicators are calculated for each university
(x)	Calculation, scoring and ranking	Once the final population of institutions and indicators has been prepared, the scores for each university are generated by weighting the metrics and the Final Rankings are calculated according to the following percentage breakdowns.
(xi)	Publication and reporting	The Rankings results are reviewed and signed off by *THE*'s Chief Data Officer
(xii)	Publication and reporting	The Rankings for the top 50 universities and banding allocation below top 50 are accurately reported on the *THE* website. The 'Reporters' are listed at the end of the table.

Appendix 1: Top 20 institutions in the *Times Higher Education* 2021 Arab University Rankings.

Institution Name	Country	Overall Rank	Overall Score	Teaching Score	Research Score	Citation Score	Society Score	International Score
King Abdulaziz University	Saudi Arabia	1	97.9	98	99.8	99	96.7	88.4
Qatar University	Qatar	2	92.8	85.4	100	94.6	93.5	88.6
King Abdullah University of Science and Technology (KAUST)	Saudi Arabia	3	92.6	92.3	100	99.8	50	77.5
Prince Mohammad Bin Fahd University	Saudi Arabia	4	90.1	79.5	93.3	100	92.7	93.8
King Fahd University of Petroleum and Minerals	Saudi Arabia	5	89.7	85.5	99.7	89.6	80.8	71.9
Khalifa University	United Arab Emirates	6	88.8	89.5	97.1	87	60	77.4
United Arab Emirates University	United Arab Emirates	7	88.4	86.5	99.1	74.3	89	86.1
King Saud University	Saudi Arabia	8	87.8	87.7	100	83.6	33.3	89
American University of Beirut	Lebanon	9	87.1	95.9	99.8	57.5	95.6	66
Zewail City of Science and Technology	Egypt	10	86	81.1	98.4	97.4	82.8	28.7
Egypt-Japan University of Science and Technology (E-JUST)	Egypt	11	85.6	82.3	94.4	94.9	84.3	40.8
Princess Nourah bint Abdulrahman University	Saudi Arabia	12	83.7	87.4	91	57.7	97.3	93.2
Mansoura University	Egypt	13	80.4	83.2	89.1	67.9	85.5	60.4
Umm Al-Qura University	Saudi Arabia	14	79.8	88.3	84.4	49.3	89.4	94.6
Arabian Gulf University	Bahrain	15	79.7	92.8	88.4	53	31	93
Sultan Qaboos University	Oman	16	79.3	85.3	97.2	54.4	32.3	77.8
Kafrelsheikh University	Egypt	=17	79.1	71.3	77.3	99.8	83.6	62.7
Suez Canal University	Egypt	=17	79.1	83	80.8	76.7	80.6	61.1
Alexandria University	Egypt	=19	78.3	83	90.5	56.4	87.4	56.6
University of Sharjah	United Arab Emirates	=19	78.3	61.9	82.2	91.2	86.3	91.7