

# University Ranking by Academic Performance (URAP)

## Press Release November 12, 2014

### Introduction

As globalization drives rapid change in all aspects of research & development, international competition and collaboration have become high priority items on the agenda of most universities around the world. In this climate of competition and collaboration, ranking universities in terms of their performance has become a widely popular and debated research area. All universities need to know where they stand among other universities in the world in order to evaluate their current academic performance and to develop strategic plans that can help them strengthen their organization and sustain their progress.

In an effort to address this need, several ranking systems have been proposed since 2003, including ARWU (China), Leiden (The Netherlands), THE (United Kingdom), QS (United Kingdom), Webometrics (Spain), SCImago (Spain), and NTU (HEEACT-Taiwan) which rank universities worldwide based on various criteria. The use of bibliometric data obtained from open-access and credible information resources such as WoS (Web of Science) and Google Scholar has contributed to the objectivity of these ranking systems. Nevertheless, most ranking systems cover up to top 500 universities around the world, which mostly represents institutions located in developed countries. Universities from other countries around the world also deserve and need to know where they stand among other institutions at global, regional, and national levels. This motivated us to develop a ranking system that is more comprehensive in coverage, so that more universities will have a chance to observe the state of their academic progress at global and national levels.

The **University Ranking by Academic Performance (URAP)** laboratory was established at METU Informatics Institute in an effort to conduct scientific research on university performance evaluation and ranking methodologies. URAP has an interdisciplinary research team who actively investigate academic performance metrics to rank universities around the globe. URAP's ranking of Top 2000 World Universities has been announced annually since the First International URAP Symposium held at METU, Ankara, Turkey in 2010. In 2011, URAP began to announce the Top 1000 Universities in 6 different scientific areas, namely Engineering, Agriculture/Environmental Sciences, Medicine, Life Sciences, Natural Sciences and Social Sciences. In 2013, the field rankings were extended to 23 scientific fields of research based on the Australian and New Zealand Standard for Research Classification<sup>1</sup>.

The most recent version of the world ranking will be announced at the Third International URAP Symposium, which will be held on November 12, 2014 at METU, Ankara, Turkey. The general ranking and the field rankings can be reached at <http://www.urapcenter.org>

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<sup>1</sup> <http://www.arc.gov.au/applicants/codes.htm#FOR>

## Aim and Scope

The URAP ranking system's focus is on academic quality. URAP has gathered data about 2,500 Higher Education Institutions (HEI) with highest number of articles published in 2013 in an effort to rank these organizations by their academic performance. The overall score of each HEI is based upon its performance over several indicators which are described in the next section. The study includes HEIs except for governmental academic institutions, e.g. the Chinese Academy of Science and the Russian Academy of Science, etc. Data for 2,500 HEIs have been processed and top 2,000 of them are scored. Thus, **URAP covers approximately 10% of all HEIs in the world**, which makes it one of the most comprehensive university ranking systems in the world.

## Definitions of the Indicators

URAP's ranking of Top 2000 world universities is based on 6 academic performance indicators. Since URAP is an academic performance based ranking, publications constitute the basis of the ranking methodology. Both quality and quantity of publications and international research collaboration performance are used as indicators. The indicators, the data sources, and the duration of coverage are summarized in Table 1.

**Table 1: URAP indicators and data sources for the general ranking of world universities**

Indicator	Objective	Coverage	Source
<b>Article</b>	Scientific Productivity	2013	InCites
<b>Citation</b>	Research Impact	2011-2013	InCites
<b>Total Documents</b>	Scientific Productivity	2011-2013	Web of Science
<b>Article Impact Total</b>	Research Quality	2011-2013	InCites
<b>Citation Impact Total</b>	Research Quality	2011-2013	InCites
<b>International Collaboration</b>	International Acceptance	2011-2013	InCites

Further descriptions of these indicators are provided below:

**Number of Articles** is a measure of current scientific productivity which includes articles published in 2013 and indexed by Web of Science and listed in InCites. Article number covers articles, reviews and notes. The weight of this indicator on the overall ranking is %21.

**Total Document** is the measure of sustainability and continuity of scientific productivity. The total document count covers all scholarly literature provided by the Web of Science database, including conference papers, reviews, letters, discussions, scripts in addition to journal articles published during 2011-2013. The weight of this indicator is %10.

**Citation** is a measure of research impact and scored according to the total number of citations received in 2011-2013. The effect of citation on the overall ranking is %21.

**Article Impact Total (AIT)** is a measure of scientific productivity adjusted by the ratio of institution's citation-per-publication (CPP) with the world CPP in 23 subject areas between 2011 and 2013. The ratio of the institution's CPP and the world CPP indicates whether the institution is performing above or below the world average in that field. This ratio is multiplied by the number of publications in that field and then summed across the 23 fields, which is summarized in the following formula:

$$AIT = \sum_{i=1}^{23} \left( \frac{CPP_i}{CPP\_World_i} \right) * Articles_i$$

This indicator aims to adjust the institution's scientific productivity according to its performance with respect to world CPPs in each field. The weight of this indicator is %18.

**Citation Impact Total (CIT):** is a measure of research impact corrected by the institution's normalized CPP with respect to the world CPP in 23 subject areas between 2011 and 2013. The ratio of the institution's CPP and the world CPP indicates whether the institution is performing above or below the world average in that field. This ratio is multiplied by the number of citations in that field and then summed across the 23 fields, which is summarized in the following formula:

$$CIT = \sum_{i=1}^{23} \left( \frac{CPP_i}{CPP\_World_i} \right) * Citations_i$$

This indicator aims to adjust the institution's scientific impact according to its performance with respect to world CPPs in each field. The contribution of this indicator to the overall ranking is %15.

**International Collaboration:** is a measure of global acceptance of a university. International collaboration data, which is based on the total number of publications made in collaboration with foreign universities, is obtained from InCites™ for the years 2011-2013. The weight of this indicator is %15 in the overall ranking.

## Data Collection

Data is gathered from Web of Science, InCites and other sources which provide lists of HEIs. 2500 HEIs with highest number of publications were initially considered, and 2000 of them were ranked after data processing. Field based bibliometric data is obtained through Thomson Reuters' InCites™ research analytics service<sup>2</sup>, which provides an interface to the Web of Science

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<sup>2</sup> <http://researchanalytics.thomsonreuters.com/incites/>

database. The 23 fields used in the ranking are based on the discipline classification matrix developed by the Australian Research Council for journals indexed in Web of Science<sup>3</sup>.

### Scoring, Weighting & Aggregation

The raw bibliometric data underlying our ranking indicators exhibit highly skewed distributions. Therefore, the indicator values above and below the median are linearly scored in two groups. The Delphi system was conducted with a group of experts to assign weights to the indicators. A total score of 600 is distributed to each indicator as follows:

- Number of Articles: % 21
- Total Document Count: % 10
- Citation: %21
- Article Impact Total: %18
- Citation Impact Total: %15
- Collaboration: %15

### Conclusion

The goal of the URAP ranking system is not to label world universities as best or worst. Our intention is to help universities identify potential areas of progress with respect to specific academic performance indicators. Similar to other ranking systems, the URAP system is neither exhaustive nor definitive, and is open to new ideas and improvements. The current ranking system will be continuously upgraded based on our ongoing research and feedback from our colleagues.

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<sup>3</sup> <http://www.arc.gov.au/pdf/ERA15/ERA%202015%20Discipline%20Matrix.pdf>