A GUIDE TO THE NATURE INDEX

A description of the terminology and methodology used in this supplement, and a guide to the functionality available free online at natureindex.com

The Nature Index is a database of author affiliations and institutional relationships. The index tracks contributions to articles published in a group of highly selective science journals, chosen by an independent group of active researchers.

The Nature Index provides absolute counts of publication productivity at the institutional and national level and, as such, is one indicator of global high-quality research output. Data in the Nature Index are updated regularly, with the most recent 12 months of data made available under a Creative Commons licence at natureindex.com. The database is compiled by Springer Nature. The list of journals tracked by the Nature Index will be extended in 2018.

NATURE INDEX METRICS

There are several measures provided by the Nature Index to track affiliation data. The simplest is the article count **(AC)**. A country or institution is given an AC of 1 for each article that has at least one author from that country or institution. This is the case regardless of the number of authors an article has, and it means that the same article can contribute to the AC of multiple countries or institutions. To get a sense of a country or institution's contribution to an article, and to ensure they are not counted more than once, the Nature Index uses the fractional count **(FC)**, which takes into account the relative contribution of each author to an article. The total FC available per paper is 1, which is shared between all authors under the assumption that each contributed equally. For instance, a paper with 10 authors means that each author receives an FC of 0.1. For authors who have joint affiliations, the individual FC is then split equally between each affiliation. Another measure used is the weighted fractional count **(WFC)**, which applies a weighting to the FC to adjust for the over-representation of papers in astronomy and astrophysics. The four journals tracked by the index in these disciplines publish about 50% of all papers in journals in this field — approximately five times the equivalent percentage for other fields. Therefore, although the data for astronomy and astrophysics are compiled in the same way as for all other disciplines, articles from these journals are assigned one-fifth the weight of other articles (the FC is multiplied by 0.2 to derive the WFC).

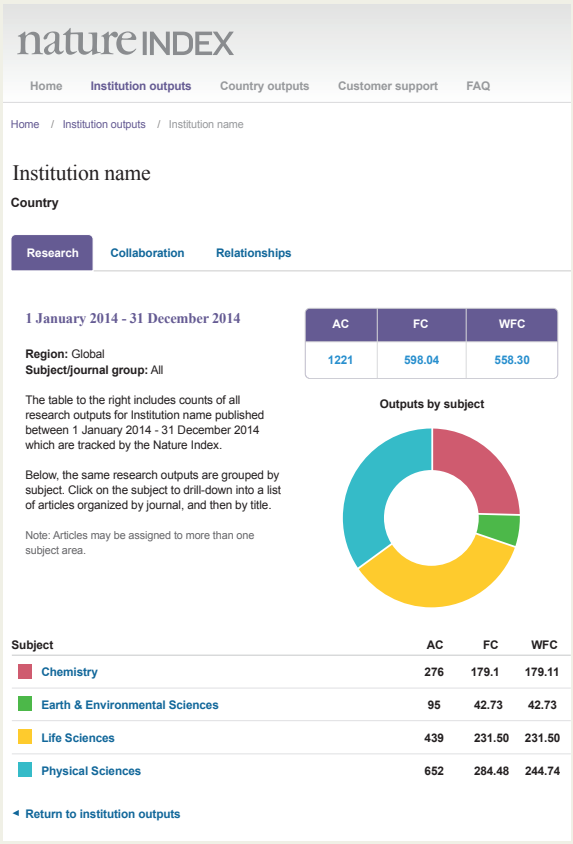
The total FC or WFC for an institution is calculated by summing the FC or WFC for individual authors. See the FAQ section at natureindex.com.

NATUREINDEX.COM

A global indicator of high-quality research

natureindex.com users can search for specific institutions or countries and generate their own reports, ordered by article count (AC), fractional count (FC) or weighted fractional count (WFC).

Each query will return a profile page that lists the country or institution's recent outputs, from which it is possible to drill down for more information. Articles can be displayed by journal, and then by article. Research outputs are organized by subject area. The pages list the institution or country's top collaborators, as well as its relationship with other organizations. Registering allows users to track an institution's performance over time, create their own indexes and export table data.



THE SUPPLEMENT

Nature Index data covers articles published from 1 January 2012 to 31 December 2016. Data from the Lens.org is included. The Normalized Lens Influence Metric considers an institution's output (resolved with identifiers PMID or DOI) between 1980 and 2015 to determine which patents cite the institution's scholarship in non-patent citations (Jefferson, O.A., et al). The citing patents are expanded to include all family members, including those that do not directly cite the institution's work. Self-citations (where applicant or patent owner was the same as the institution) are then removed and third-party expanded patent citations calculated. To account for variations in disciplines, an average third-party patent citations per paper is determined using third-party citations and article counts across all institutions, and for each discipline. An institution's third-party expanded by family are divided by the corresponding average citation to obtain the weighted third-party citations per discipline for each institution. An institution's normalized aggregate third-party patent citations are then divided by the number of resolved outputs to generate the Normalized Lens Influence Metric. It has been derived for 200 institutions that appeared at least once in the top 100 institutions of the 2015 Nature Index, the Academic Ranking of World Universities (ARWU), Thomson Innovation or the 2015/16 Leiden ranking. Lens analysis considers patents (applications and granted) from 95 jurisdictions.

Further details at lens.org/lens/in4m. Tables include data from Web of Science, InCites and the Derwent World Patents Index, provided by Clarivate Analytics. ■