NTU library

Demonstrating your scholarly impact using bibliometrics

NOTTINGHAM
TRENT UNIVERSITY

What are bibliometrics?

Bibliometrics provide a quick, easy and quantifiable way of measuring research performance based on the number of citations received by publications.

They can be divided into two main areas:

- Metrics based on the journal performance/influence and prestige
- Metrics based on the performance of individual papers or specific authors/researchers

Journal based metrics

Journal based bibliometrics, although useful, can only act as indicators of the overall influence of a journal and should only be used to compare journals in the same research area (due to varying citation patterns). They cannot be used be used to directly demonstrate the quality of individual papers or the work of specific individuals; however where you successfully get your research published is suggestive of the quality and impact of your papers.

What is an Impact Factor?

The most well-known journal based metric is the **Impact Factor**, it is an established quantitative tool that helps identify the relative importance of a journal. It is based on the number of times a published paper is cited up to two years' post-publication.

How is the Impact Factor calculated?

An journal's Impact Factor is calculated by dividing the number of current year citations by the source items published in that journal during the previous two year.

i.e. the 2013 Impact Factor of a given journal =

$$\frac{\text{No. of citations in 2013, of the papers published in 2011-2012}}{\text{Total no. of publisher papers in 2011-2012}}$$

More information about how this is calculated is available here.

Where can I find Impact Factors?

This information is available from Journal Citation Reports provided via the Thompson Reuter's Web of Science database (to access this off campus please go via the Library OneSearch 'Find Databases' link and use the institutional login).
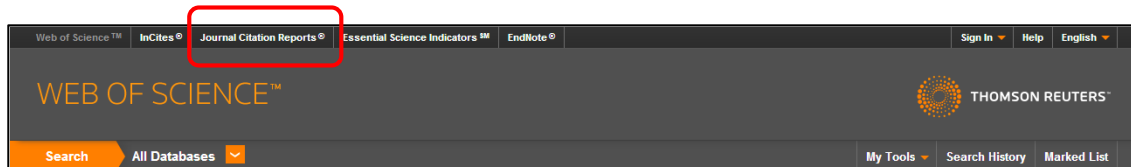
Type in the title of the journal where it states **Go to Journal Profile** and you will be provided with a range of key indicator information about that journal including its Impact Factor.

NATURE IMMUNOLOGY

ISSN: 1529-2908

NATURE PUBLISHING GROUP
75 VARICK ST, 9TH FLR, NEW YORK, NY 10013-1917
USA

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Titles
ISO: Nat. Immunol.
JCR Abbrev: NAT IMMUNOL

Categories
IMMUNOLOGY - SCIE

Languages
ENGLISH

12 Issues/Year;

Key Indicators

Year ▼	Total Cites Graph	Journal Impact Factor Graph	Impact Factor Without Journal Self Cites Graph	5 Year Impact Factor Graph	Immediacy Index Graph	Citable Items Graph	Cited Half-Life Graph	Citing Half-Life Graph	Eigenfactor Score Graph	Article Influence Score Graph
2013	34,765	24.973	24.277	25.566	4.507	136	6.0	5.1	0.14263	12.977
2012	32,465	26.199	25.406	25.005	4.961	128	5.7	4.9	0.16001	13.818
2011	31,436	26.008	25.075	24.735	5.856	132	5.4	4.7	0.16356	13.427

SCImago Journal & Country Rank (SJR)

This journal metric uses the Google PageRank algorithm applied to data available from the Scopus database and is based on the *"average prestige per paper of a journal"**; citations are counted over a three year period. An SJR score is roughly comparable to an Impact Factor and also includes some Arts and Humanities subject coverage.

*More detail can be found in this paper: González-Pereira, B., Guerrero-Bote, V.P. and Moya-Anegón, F., 2010. A new approach to the metric of journals' scientific prestige: The SJR indicator. *Journal of Informetrics,* 4 (3), 379-391.

How do I access SJR?

These metrics are freely available via the SJR portal and can be browsed by subject category by selecting **Journal Rankings** or you can search for a specific journal by opting for **Journal Search**.

Alternatively it can be access via the Scopus Journal Analyzer tool:

Eigenfactor Metrics – Eigenfactor Score and Article Influence Score

Like SJRs, Eigenfactor scores are calculated using a complex algorithm based on *"a simple model of research in which readers follow chains of citations as they move from journal to journal"**. Eigenfactor scores are based on citation data from the Web of Science Core Collection and these citations are weighted by the importance of the citing journal calculated over a five year period (compared to the two years considered by Impact Factor).

An Article Influence Score is calculated by taking a journal's Eigenfactor Score and dividing it by the fraction of articles published in that journal. That fraction is normalised so that the sum total of articles from all journals is 1.

**Full details about Eigenfactor score and Article Influence Score methodology are available here.

Where do I find Eigenfactors?

These are accessible by the same route as Impact Factors (see above) via the Web of Science's Journal Citation Reports (please note this are only available for journals included in the Core Collection).

EDUCATIONAL PSYCHOLOGIST

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USA

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Titles
ISO: Educ. Psychol.
JCR Abbrev: EDUC PSYCHOL-US

Categories
EDUCATION & EDUCATIONAL RESEARCH - SSCI;
PSYCHOLOGY, EDUCATIONAL - SSCI;

Languages
ENGLISH

4 Issues/Year;

Key Indicators

Year	Total Cites Graph	Journal Impact Factor Graph	Impact Factor Without Journal Self Cites Graph	5 Year Impact Factor Graph	Immediacy Index Graph	Citable Items Graph	Cited Half-Life Graph	Citing Half-Life Graph	Eigenfactor Score Graph	Article Influence Score Graph
2013	2,620	4.844	4.406	4.161	1.529	17	>10.0	>10.0	0.00327	2.101
2012	2,344	3.289	3.079	4.044	2.526	19	>10.0	9.9	0.00324	2.039
2011	2,155	1.913	1.761	5.094	0.615	13	>10.0	9.1	0.00397	2.251

Individual and article level metrics

These types of bibliometrics are based on the number of articles a researcher has published and the amount of times these articles have been cited by others; this information can then utilised to compare researchers.

However, the average number of citations per author is a fairly unsophisticated way of measuring an individual's research impact, so various metrics have been developed in an attempt to overcome this. The most commonly used and recognised of these metrics is the *h*-index.

Where can I find citation information about my papers?

Citation information can be discovered from three main sources: Web of Science, Scopus and Google Scholar.

Web of Science measures how often an article has been cited and provides details of the citing articles by following the number of **Times Cited** link.

[Scopus](#) measures how often an article has been cited and provides details of the citing articles by following the link to **View all citing documents.**

[Google Scholar](#) shows a **Cited By** link in the search results, which will take you to a list of citing sources. Google Scholar includes citations from an array of (non-traditional) sources including PowerPoints, etc.

Receiving alerts when my work gets cited

All the citation sources listed above include facilities which enable you to receive notifications when your work receives citation. For both Web of Science and Scopus you first need to set up a personal account (**NB this should be done when you are on campus**). For Google Scholar notifications you will need to set up a personal [Google Scholar Profile](#).

Once registered and signed in to [Web of Science](#) perform a search to locate a particular paper then you can select **Create Citation Alert.**

Once registered and signed-in to [Scopus](#) you can can set up alerts by following this basic [tutorial](#).

The *h*-index

Originally developed by [Hirsch,](#) it was developed as a way of simply evaluating the impact and productivity of an author's performance within a specific research discipline. Although it has limitations (see below) and has spawned many variants it still remains a recognised comparable metric for showing impact in an unbiased way (particularly within the sciences).

It is based on the formula:

"A scientist has index h if h of his or her N_p papers have at least h citations each and the other ($N_p - h$) papers have $\leq h$ citations each." (Hirsch 2005)
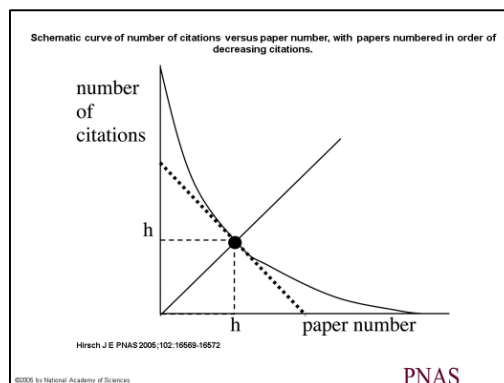

Hirsch, J.E., 2005. An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences of the United States of America,* 102 (46), 16569-16572.
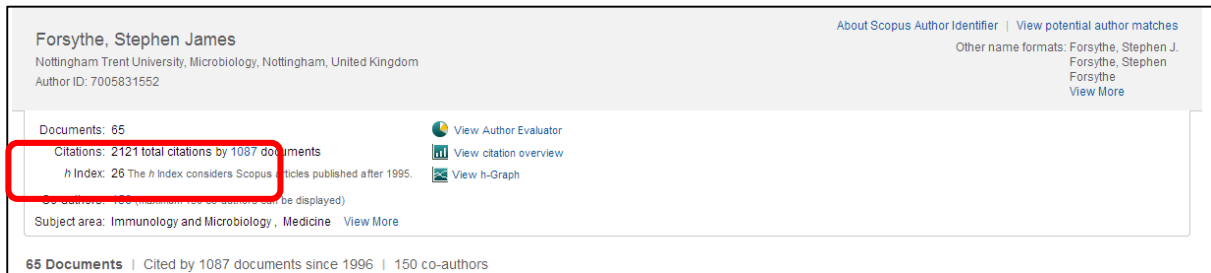
Find your *h*-index

Your *h*-index can be obtained from the usual sources detailed below – note that you can have a different *h*-index dependent on the data source used to calculate it, i.e. a Scopus *h*-index only includes citation data for items indexed within Scopus, whereas the Web of Science is not limited to items indexed in its databases, and Google Scholar predominantly indexes freely available open access sources.
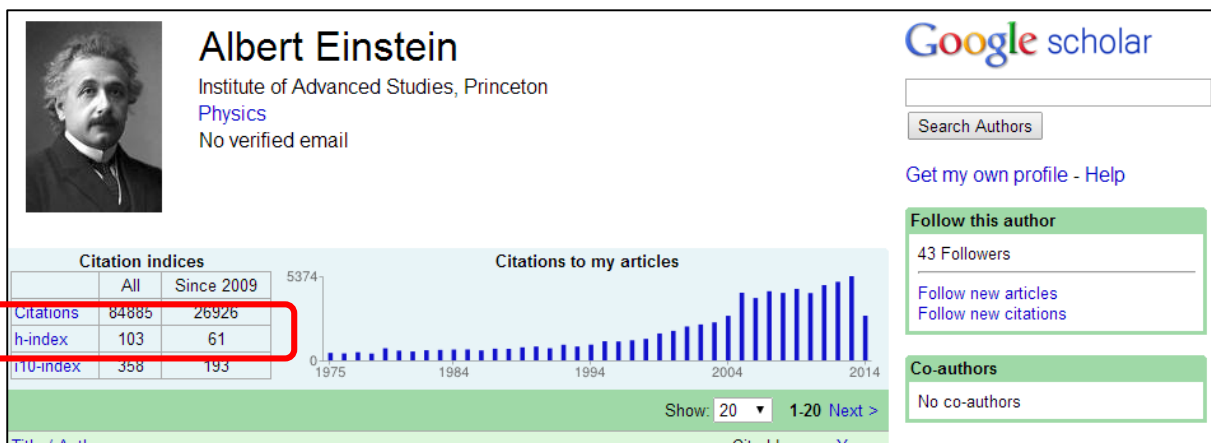
[Web of Science](#) (via a **Citation Report**)
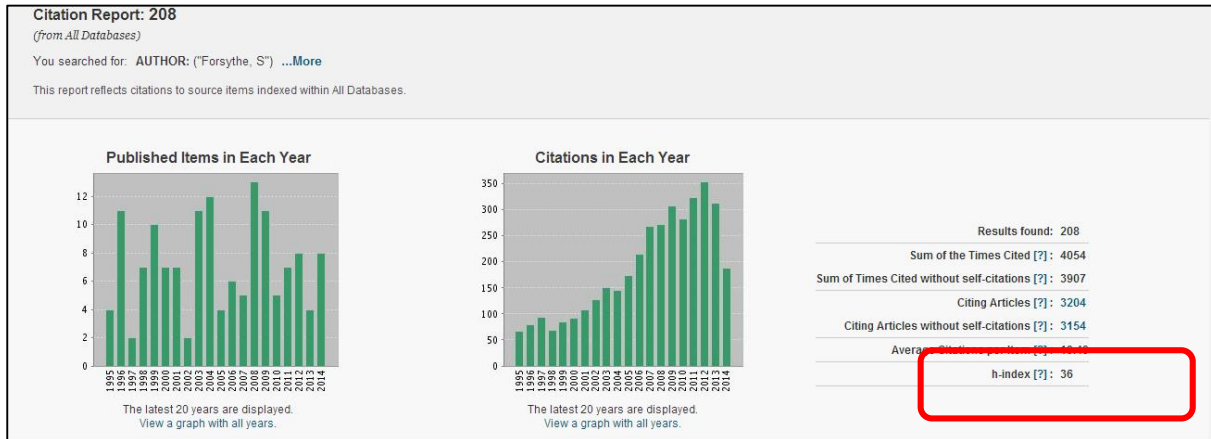
[Scopus](#) (via **Author Search**)

[Google Scholar](#)

[Harzing's Publish or Perish (POP)](#) is a downloadable software program that retrieves and analyses citations obtained by Google Scholar. It uses these citations to calculate a range of citation metrics including your *h*-index.

Limitations of the *h*-index

- *h*-values will vary between subject disciplines so this must be considered when comparing authors.
- It does not account for age, e.g. a more seasoned researcher could potentially have a higher *h*-index just due to having a longer period in which to publish and be cited.
- It does not account for currency e.g. a researcher may have a high *h*-index but not have published for some time and conversely an active (new) researcher may have a low *h*-index (but of course may have the potential to be highly cited in the future).
- *h*-index is only applicable to traditional research outputs (articles, conference proceedings).
- It can't capture influence on public policy, improved global health, etc.

For further advice and support please contact the Library Research Team.