Scholarly Metrics

Basics - Scholarly Metrics - Library Guides at University at Albany

This page describes the various means of searching for cited and citing references, measures of influence and impact, altmetrics and bibliometrics.

Tracking Cited References

Cited references are the articles, books, and other resources listed in a bibliography, a “Works Cited” list, or in a “References” list. Cited references are useful for finding additional articles and books on a topic, for identifying the top researchers in a field, and for promotion and tenure decisions.

Databases tracking cited references make it possible to follow the instances where an author has been cited. This technique may be useful to:

- Track the research of an individual
- Track the history of a research idea
- Locate current research based on earlier research
- Find out how many times and where a publication is being cited
- Find out who is citing a particular source
- Find out how a particular research topic is being used to support other research and to analyze its impact

Effective Strategies for Increasing Citation Frequency

Journal Reputation and Impact: Publishing a paper in a journal based on disciplinary reputation or with a high impact factor is the most well-known way of getting your paper cited. But there are many other things a scholar can do to promote his or her work and make it easy for others to find.

Utilize Open Access Tools: Open Access journals tend to be cited more than non-open access. Deposit your paper in a repository such as Scholars Archive here on campus or a disciplinary repository. Share your detailed research data in a repository.

Standardize Identifying Info: Try to use

Overview of Citation Metrics

BASIC CITATION METRICS: AN OVERVIEW

Citation Count:
The number of times an article, author, journal, institution, or other group.

Citation Analysis:
The process of tracing various patterns of scholarly behavior through analyzing the cited and/or citing references of a body of work. This could be done on an individual article, author, journal, institution, or other group.

Citation Evaluation:
Simply identifying the number of times someone or something has been cited does not account for certain citation patterns. For example, an author may have one or two articles early in his or her career that have high citation counts, but later articles have substantially fewer. Another author may have a relatively steady number of citations for each article throughout his or her career.

Journal Ranking:
There are a number of metrics that seek to measure the influence of a journal based on how it is being cited in other works. One such metric is the Journal Impact Factor. It should be emphasized that the ranking of a journal is not necessarily a reflection of a single specific article within the journal.

Altmetrics:
A new form of measuring scholarly impact based on web-based and social media sources which can show influence and impact.

Bibliometrics:
The variety of metrics available based on cited reference data to measure scholarly output, impact, relevance and ranking. Analytics include citation count, impact factor, SNIP, h-index, e-index, and a wide variety of related measurements.

Citation Analysis:
The process of tracing various patterns of scholarly behavior through analyzing the cited and/or citing references of a body of work. This could be done on an individual article, author, journal, institution, or other group.

Citation Count:
The number of times an article, author, journal, institution, etc. has been cited. It is very difficult to locate every single time something or someone has been cited. Commonly accepted citation counts come from Web of Science. Each source which provides citation counts draws from a different base of resources and therefore the results may differ between Web of Science and Google Scholar, for example.

Citation Evaluation:
Simply identifying the number of times someone or something has been cited does not account for certain citation patterns. For example, an author may have one or two articles early in his or her career that have very high citation counts, but later articles have substantially fewer. Another author may have a relatively steady number of citations for each article throughout his or her career.
the same name throughout your career as well as the name of your affiliated institution. Using common "official" names will allow for consistency and easy retrieval of your work by author or affiliation.

**Bring Colleagues on Board:** team-authored articles are cited more frequently, as does publishing with international authors. Working cross-or inter-disciplinarily helps as well.

**Beef Up That Paper:** use more references, publish a longer paper. Also papers which are published elsewhere after having been rejected are cited more frequently.

**Beyond Peer-Reviewed Original Research:** Write a review paper. Present a working paper. Write and disseminate web-based tutorials on your topic.

**Search Optimization:** use keywords in the abstract and assign them to the manuscript. Use descriptive titles that utilize the obvious terms searchers would use to look for your topic, avoiding questions in the title. Select a journal that is indexed in the key library databases for your field.

**Market Yourself:** create a key phrase that describes your research career and use it. Update your professional web page and publication lists frequently. Link to your latest and greatest article in your professional email signature file.

**Utilize Social Media:** Use author profiles such as ResearcherID and ORCID. Contribute to Wikipedia, start a blog and/or podcast, join academic social media sites.


**Quality Factors & Caveats**

**Journal Prestige:** There are basically two approaches to assessing journal prestige: (1) Perception/ranking of the journals by experts in the field, and (2) Journal ranking metrics providing analysis of citation rates. Other factors, such as journal submission and acceptance rates are also sometimes considered. Consult your Subject Librarian for assistance in this area.

**“Good” Metric Scores (citation count, h-index, journal impact factor, journal ranking, etc.):** Due to the varying citation rates from discipline to discipline, and even from specialty to specialty within a discipline, it is not possible to give a blanket statement regarding "good" metrics.

**Caveats:** There are many reasons why an author will cite previous research in his or her paper, and not all are an endorsement of the previous research. Self-citation, disagreeing or contradicting previous findings, and other motivations may not accurately reflect the influence of that work. This holds true for altmetrics counts as well.


Comments (0)
Overview

Article Citation Counts

Getting Started

If you are looking for ... See ...

- How many times your article has been cited
- How many times your book, conference paper, dissertation or patent has been cited
- How many times your publications have been downloaded or mentioned in social media
- Who is citing your articles
- Who is citing your book, conference paper, dissertation or patent
- Your H-index
- A journal's impact factor
- A journal's H-index
- Explanations of citation research concepts and terminology
Research Impacts Using Citation Metrics

**Introduction to Guide**

This guide introduces resources that describe, utilize, and support the current research landscape.

- Considerations of the roles of author content, sources, impact, reputation, rankings, and benchmarking are increasingly important in analyzing contributions to the research life cycle.
- Information here is organized by the different methods of impact that the research landscape is defined by:
  - Author Impact
  - Article Impact
  - Journal/Source Impact
  - Institutional Impact

**Recommended Methods**

Some recommended methods of research impact and citation metrics are detailed in the pages of this guide:

- Web of Science Citation Report (Author Impact)
- Google Scholar Author Profile (Author Impact)
- H-index (Author Impact)
- Altmetrics (Article Impact)
- Web of Science Cited Reference Search (Article Impact)
- Journal Citation Reports Impact Factor (Journal Impact)
- Eigenfactor (Journal Impact)

**Research Impacts Using Metrics**

**Research impact** is a measure of the significance and importance of academic work within a scholarly community.

**Bibliometrics** are the use of quantitative tools to study publications and other written material.

**Citation analysis** focus on the statistical patterns and measurements of citations.

**Altmetrics** can be used as a quantifiable measure of academic output and research impact, which can help inform decisions on publication, promotion, and tenure.

Because of the limitations of each method, it is important to use multiple methods, sources, and tools to get a fuller and more complete analysis. Increasingly, the research community is studying how to assess the value of cooperation and collaboration among colleagues, scholars and scientists, with barriers being reduced and geography more global. New metrics and values will likely emerge through different sources, to complement and extend already existing methods and products.

**Limitations of citation metrics:**

- Current cause of concern articulated by scientists in this article about the role of impact factors in determining merits of science and scientists
Errors on citing papers can lead to separate entries and missed counts.
Author and institutional naming inconsistencies can lead to separate entries and missed counts.
Different databases use different sources to generate data and some are more comprehensive than others.
Tools are skewed towards the STEM (science, technology, engineering, and medicine) communities of scholars.
Citations do not measure the number of readings of a work.
Citations are not the only indicators of the importance of a work.

DORA
The San Francisco Declaration on Research Assessment (DORA) has generated a lot of discussion since it was launched by the American Society for Cell Biology in December 2012.

Additional comments from Science, theBUZZ

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Impact Metrics and Scholarly Attribution

Discover your research impact, manage attribution of your research works, and search citations.

Guide Introduction

The goal of this guide is to assist faculty members, research staff, and graduate students in understanding how to use impact metrics tools currently available.

Considerations need to be made in regards to the role that the author, content, source, impact, ranking, and benchmark have on the research cycle.

Four main areas can be used to determine the impact of research:

- Author Impact
- Article Impact
- Journal/Source Impact
- Institutional Impact

Limitations on Impact Factors

With any statistical measurement, there will always be limitations of the data. Things to keep in mind:

- Errors on citations can lead to multiple entries and missed citations.
- Author and institutional naming inconsistencies can lead to multiple entries and missed citations.
- Different databases use different sources to generate data. Some databases are more comprehensive than others.
- These tools are highly skewed toward STEM (science, technology, engineering, medicine) scholars.
- Citations do not measure the number of times a work has been read or accessed.
- Citations are not and should not be the only indicator of the importance of a work.

The San Francisco Declaration on Research Assessment (DORA), run by the American Society for Cell Biology, has partnered with editors and publishers to ask the scientific community to stop misusing impact factors as a metric to judge scientific output.
Determining Impact from Metrics

Impact

Research impact is a measure of the significance and importance of academic work within a scholarly community.

Bibliometrics are the use of quantitative tools to study publications and other written material.

Citation metrics focus on the statistical patterns and measurements of citations.

Citation analysis can be used as a quantifiable measure of academic output and research impact, which can help inform decisions on publication, promotion, and tenure.

Altmetrics is increasingly becoming an alternative and important method of measuring the impact of scholarly output and allows for social media tracking by various indicators such as number of tweets, blog posts, likes, bookmarks, etc. and are more timely wider-ranging measures of how people—both other researchers and the general public have demonstrated interested in an individual’s work and contributions.

This guide is designed to help faculty members, graduate students and librarians use and understand the citation analysis tools available to us. At UCLA, there is access to some of the major resources used for citation metrics, for example to obtain an Impact Factor (IF) you could consult the following tools: Web of Science and Journal Citation Reports. Descriptions of and guides to these tools can be accessed using the above drop-down menu, organized according to need.

Tools and methods of citation analysis are used to determine:

- How many times a publication or author has been cited
- Who is citing a publication or author
- A journal’s impact factor (relative importance in a field or discipline)
- An author’s published output ranking in a field or discipline.

Because of the limitations of each method, it is important to use multiple methods, sources, and tools to get a fuller and more complete analysis. Increasingly, the research community is studying how to assess the value of cooperation and collaboration among colleagues, scholars and scientists, with barriers being reduced and geography more global. New metrics and values will likely emerge through different sources, to complement and extend already existing methods and products.

Image credit: http://altmetrics.org/
Enhance Your Research Impact: Intro
http://guides.mclibrary.duke.edu/c.php?g=158197&p=1035857
This guide is intended to be helpful to someone looking for information to showcase their academic publishing or scholarly visibility. Tenure-track faculty often struggle with ways to present information in their promotion or tenure review portfolio. This same sort of data is useful to justify the existence of research programs. Traditionally, elements have included numbers of pages that publications have been cited, journal acceptance rates, journal acceptance rates, and journal impact factors. In the electronic age, this has expanded to include non-traditional elements such as number of website visits (e.g., for lectures authored by the faculty member under review), downloaded statistics for PDF, Excel, or Word documents, and new citation metrics such as the h-index or Eigenfactor score.

To learn how to conduct a cited reference search in the Web of Science Core Collection and many other sources such as Google Scholar, consult the Cited Reference Guides. Then, use the remaining data in this guide for ideas on things that might help manage information and present it for your review. For additional information specific to a given discipline, we recommend you contact your subject librarians and consult senior faculty in your department.

**Alternative Sources**

Thanks to the Internet, there is an ever-increasing array of resources available to provide quantitative data about a given publication (especially if it is available online). For example:

- **Delicious** (and other similar online communities) can tell you how many people have saved a particular URL they found useful.
- **Google - Advanced Search** will let you see who has linked to a specific URL...
- **Google Analytics** can provide website traffic data (registration is required—but analytics are free).
- **Google Books** will allow you to search for a citation within a book.

Journal editors and publishers often offer download or page hits for articles. Some editors will even tell you what the average number of downloads is for a specific journal that you can then compare to your article(s). While usage data is not the same as citation data, it is another way to show usefulness to scholars.

For some disciplines, these alternative sources of information may be unacceptable or unacceptability. Web of Science publishers are attempting to cover just the "top" journals in each discipline so being cited by the selected group of core journals can often carry more weight than alternative sources of citation information such as Google Scholar. However, many interdisciplinary areas (and new fields) are not covered well by Web of Science so alternative sources may be the only way to document scholarly impact. If in doubt about what might (or might not) be acceptable in your discipline, consult senior faculty or your department.
Traditionally, and especially in the sciences, impact has been measured by the number of times a particular article is cited in other comparable publications, or more broadly by the “impact factor” of the journal in which an article appears. While the ability to demonstrate impact can still be an important tool in the promotion and tenure process, complementary or "alternative metrics" for measuring disciplinary impact using formal and informal communications are also becoming more common. These "altmetrics" provide rich, evolving, and diverse methods to point to other kinds of impact, for example impact on the global scholarly community or the general public. The ability to measure impact is often enhanced by free and open access to scholarly publications.

Further reading

"Using bibliometrics in evaluating research." This guide to bibliometrics by Thompson Reuters gives a good overview of impact measures, and provides 10 rules for useful and realistic publication and citation analysis: http://seekinfo.com/oeelain1i/6qUtWP.pdf


Bibliometrics are ways to measure the impact or influence of an article, journal, or researcher. In one way or another, most bibliometric measures look at how frequently that article, journal, or researcher is cited. Some of the greatest advantages to using bibliometrics are:

- helping researchers figure out where to publish
- finding the most important journals in a field


• Usage - How many downloads? Where downloaded?
  Examples: KU ScholarWorks

• Captures - How many bookmarks, shares (CiteULike, Mendeley)
  Example: How many "reads" an item In Mendeley has

• Mentions - Mentions in non-academic media (news stories, Wikipedia, etc.)
  Example: Altmetric

• Social media - Facebook, LinkedIn, Twitter shares
  Example: Altmetric

• Citations - Classic metric for "impact"
  Example: GoogleScholar, GoogleScholar Metrics

• guiding students to the most important papers on a topic

• learning about the impact of a paper, researcher, or department

There are many different ways to measure impact, and new ways to view impact are being created now to match changes in research, publishing, and technology. The methods described here are some of the most commonly used.

While each bibliometric measure provides a lot of information, keep in mind that no one measure is thorough enough to fully describe value of a paper, journal, or researcher.
MCGILL UNIVERSITY
Impact Measurements
What are some limitations of Scholarly Metrics

- Jacobo, P. (2008). Testing the calculation of a realistic h-index in Google Scholar, Scopus, and Web of Science for E. Lancaster. Library Trends, 56(4), 784-815. This reviews three of the main scholarly metrics tools (Google Scholar, Scopus, and Web of Science) and delves into the functionality of them.
Measure Your Research Impact: Introduction

Learn how to measure the impact of your research.

Introduction   Journal Impact   Author Impact   Author Identifiers & Profiles   Altmetrics   Article Level Metrics

Where to Publish

In This Guide

Learn how to assess the impact of your research

- Journal Impact
- Author Impact
- Author Identifiers
- Altmetrics
- Where to Publish

What is Research Impact?

Research impact is the demonstrable contribution that excellent research makes to academia, society and the economy:

- **Academic impact**: Contribution to academic advances, across and within disciplines, in understanding, methods, theory and application
- **Societal impact**: Benefit to individuals, organizations and nations by enhancing quality of life, health and creative output, and increasing the effectiveness of public services and policy
- **Economic impact**: Attracting investment, wealth creation, enhanced national and global competitiveness

The above statements were adapted from the Research Councils UK.

There are several reasons to measure your research impact:

- Application for promotion or tenure
- Quantify return on research investment for grant renewals and progress reports
- Future funding requests
- Identify who is using your work and confirm that it is appropriately credited
- Identify collaborators within or outside of your discipline

The Health and Natural Sciences Team is composed of librarians from the Health Sciences and Kenan Science Libraries.

Last Updated: Apr 24, 2015 2:22 AM   URL: http://guides.lib.unc.edu/measureimpact
Citation metrics are statistics on the number of times books or articles have been cited in other publications. Aggregate citation metrics are used as a measure of the influence of authors and of journals.

Individual authors track their citations to determine the influence of their work within their field, to see which of their publications are most widely used, and to support their tenure and promotion dossiers. At the journal level, citation metrics are used to measure the relative importance of titles within their fields.

Journal-Level Metrics

Some of the most commonly used journal-level metrics include:

- **Impact factor**—a measure of the average number of citations received by recent articles in a given journal.
- **H-index**—a measure of the influence of either a journal or an individual scholar that accounts for both productivity and impact.
- **Acceptance rate**—the percentage of submitted articles that a journal accepts for publication. (The acceptance rate is not a citation metric per se, but it is often used as a measure of a journal's relative selectivity and prestige. In combination with data like the impact factor, the acceptance rate can be useful in assessing the title's significance to its field.)

Article-Level Metrics

In addition to the measures that calculate the overall impact of a journal, metrics can also be used to calculate the impact of an individual article. The traditional article-level metric is the citation count: the number of times that the article was cited by other scholarly articles.

For another approach to measuring impact, see **Altmetrics**. This suite of metrics includes a variety of measures and tools that trace the impact of research products using metrics besides the traditional, formal citation in other scholarly sources. Some of the measures are designed to account for a wider range of research products (e.g., datasets, software, etc.), while others track impact in a broader variety of venues, especially the social web.

Web of Knowledge

The library's main sources for citation metrics are [Web of Science](http://guides.ou.edu/metrics) and [Journal Citation Reports](http://guides.ou.edu/metrics). Both are included within [Web of Knowledge](http://guides.ou.edu/metrics), a collection of databases published by Thomson Reuters.

Web of Science is the online successor to the Science Citation Index and Social Sciences Citation Index. To access these databases, choose them from the alphabetical list on the library website or via the links above. See the tabs for the individual citation metrics for detailed instructions on finding each one. Other sources for finding citation metrics include [Google Scholar](http://guides.ou.edu/metrics) and the altmetrics sites.
UNIVERSITY OF PITTSBURGH
Citation Searching and Bibliometric Measures: Home
http://pitt.libguides.com/bibliometrics

For Librarians
An Open Access tool to support bibliometrics training and awareness offered by four Irish academic libraries (Dublin City University, Dublin Institute of Technology, National University of Ireland, Maynooth, and University College Dublin) and funded by the Irish National Digital Learning Resources (NDLR).
All materials are available under Creative Commons license, enabling you to select, edit and re-package them to suit your local needs.
• MyRI (My Research Impact)

New Directions for Altmetrics
New research is being done to define ‘altmetrics’ that also define a researcher’s impact. The method of communication can vary but is outside of the traditional journal article.
The University of Pittsburgh has partnered with Plum Analytics to provide alternative methods of measuring research output. We are pioneering this effort.
• Plum Analytics Press Announcement
University of Pittsburgh becomes the first institution to adopt Plum Analytics to provide other metrics for research output.
• Altmetrics in the wild: Using social media to explore scholarly impact
By Jason Mayhew, Heather A. Phensavath, Bradley M. Hemminger.
“In growing numbers, scholars are integrating social media tools like blogs, Twitter, and Mendeley into their professional communications. The online, public nature of these tools exposes and refines scholarly processes once hidden and ephemeral. Metrics based on this activity could inform broader, faster measures of impact, complementing traditional citation metrics.”
• Scholars Seek Better Ways to Track Impact Online
“An approach called altmetrics—short for alternative metrics—aims to measure Web-driven scholarly interactions, such as how often research is tweeted, blogged about, or bookmarked.”
• Citation by Citation, New Maps Chart Hot Research and Scholarship’s Hidden Terrain
By Jennifer Howard in the Chronicle of Higher Education, September 11, 2011
“Imagine a Google Maps of scholarship, a set of tools sophisticated enough to help researchers locate hot research, spot hidden connections to other fields, and even identify new disciplines as they emerge in the sprawling terrain of scholarly communication.”

Last Updated: Apr 24, 2015 2:14 AM
URL: http://pitt.libguides.com/bibliometrics
Subjects: Information Sciences, Research Skills
Tags: author impact, altmetrics, citation searching, journal impact
Citation Metrics

Citation analysis is a quantifiable measure of academic output and may help inform decisions on promotion and tenure. This guide is designed to help faculty members and librarians use and understand the tools available to us. We are fortunate to have access to the top paid resources used for citation metrics – Web of Science, Scopus and Journal Citation Reports.

We need to be aware of the limitations and incongruities of citation metrics. The databases referenced above, and including Google Scholar, do not correct errors in citing papers. This means that one paper may be cited many different ways and appear as separate entries in these tools. Also, author and institutional naming inconsistencies complicate these analyses.

Comparisons between these tools should be avoided. The databases use different sources to generate data and some are more comprehensive than others. In addition, the literature suggests that these tools are skewed towards the STM (science, technical and medical) community of scholars.

The recommended methods for citation analyses are detailed this guide. Another useful metric is the h-index which can be generated in both Web of Science and Scopus. The h-index is defined as:

A scientist has index h if h of [his/her] Np papers have at least h citations each, and the other (Np - h) papers have at most h citations each.

Information for Authors

ORCID - Open Researcher ID - is an initiative to provide researchers and scholars with a persistent, unique identifier. This will enable individuals to get recognized for all their scholarly output, in both established and emerging media. With broad-based support from publishers, academic institutions, and funders, ORCID registration and services are free to individuals. Sign up here: http://about.orcid.org/.

Comparison across Databases

Useful data can be found in each tool but direct comparisons across databases are problematic. These resources use different pools of data, date ranges and may interpret citations differently. Correct attribution of authorship can also cause reporting errors. Take control of your scholarly output - check your author profiles and register for an ORCID ID.

<table>
<thead>
<tr>
<th></th>
<th>Times cited</th>
<th>H-Index</th>
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<tbody>
<tr>
<td>Scopus</td>
<td>135</td>
<td>7</td>
</tr>
<tr>
<td>Web of Science</td>
<td>85</td>
<td>11</td>
</tr>
<tr>
<td>Google Scholar</td>
<td>279</td>
<td>10</td>
</tr>
</tbody>
</table>

This chart illustrates reporting differences. Exercising as much consistency as possible, the same author was profiled (11/2012) in each resource. The varied results are displayed above.