Measuring Researcher Impact
Research ReachOut @ the Library S2 2019
Enable Murdoch University researchers to measure the quantity and quality of their research output using:

- Publication and citation counts
- Metrics
- Altmetrics
- Measures of esteem
Overview

1. Why measure researcher impact?
2. Using researcher profiles and identifiers
3. Finding publication and citation counts
4. Creating citation reports
5. Calculating individual researcher metrics
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Measure Research Quality and Impact - Research Guide

Home

Measuring Research Quality and Impact

The activity of measuring and describing the quality and impact of academic research is increasingly important in Australia and around the world. Applications for grant funding or career advancement may require an indication of both the quantity of your research output and of the quality of your research.

Research impact measurement may be calculated using researcher specific metrics such as the h-index, or by quantitative methods such as citation counts or journal impact factors. This type of measurement is also referred to as bibliometrics.

This guide provides information on a range of bibliometrics including: citation metrics, alternative metrics, researcher impact, journal quality and impact, book quality and impact, and university rankings.

Key Terms and Definitions

Altmetrics - Altmetrics (alternative metrics) are qualitative data that are complementary to traditional, citation-based metrics (bibliometrics), including citations in public policy documents, discussions on research blogs, mainstream media coverage, bookmarks on reference managers, and mentions on social media.

Author identifiers - Author identifiers are unique identifiers that distinguish individual authors from other researchers and unambiguously associate an author with their work.

Bibliometrics - Bibliometrics is the quantitative analysis of traditional academic literature, such as books, book chapters, conference papers or journal articles, to determine quality and impact.

Cited reference search - A cited reference search allows you to use appropriate library resources and citation indexes to search for works that cite a particular publication.

Citation index - A citation index is an index of citations between publications, allowing the user to quickly establish which later documents cite which earlier documents.

Citation report - A citation report is a compilation of the bibliographic details for all of the publications a researcher has authored, along with the number of times those publications have been cited and any relevant author metrics.

Citation - A reference to or quotation from a publication or author, especially in a scholarly work.

Research Support

Researchers at Murdoch University are supported by the Library and the Research and Innovation Directorate.

Please contact your Subject Librarian to make an appointment for advice on measuring research quality and impact.

Research Week S1, 2019

- Measuring Journal Impact
- Measuring Researcher Impact

Slides from Research Week, Semester 1, 2019

libguides.murdoch.edu.au/measure_research
Tools: Databases

- Scopus
- Web of Science Core Collection
- SciVal

http://goto.murdoch.edu.au/Databases
Tools: Scopus

- Multidisciplinary
- Includes journals, books and conference proceedings
- Includes citation data and analyses author output
Tools: Web of Science Core Collection

- Multidisciplinary
- Includes journals, and conference proceedings
- Includes citation data and analyses author output
Tools: SciVal

- Research benchmarking and metrics database
- Based on Scopus data
- Analyses group, department, university & country output
Why measure researcher impact?

You may be asked to demonstrate the quantity, quality and impact of your research publications for a variety of purposes:

• to enhance your profiles and promote your research to potential employers, collaborators and investors
• to benchmark your productivity for performance reviews
• to support promotion or tenure applications
• to support grant or other funding applications and progress reports
Using researcher profiles and identifiers

Research profiles are the basis for measuring your research output and allow you to:

• Manage your publications list
• Avoid misidentification
• Track citation counts
• Attribute your research output to Murdoch University
• Promote your research locally, nationally and globally
• Be identified by potential collaborators
• Enhance your Murdoch staff profile with current data
Which profile service should I use?

- Multiple profile services are available with different advantages

- May need more than one for comprehensive coverage of your research:
  - ORCiD
  - Author Identifier - Scopus (Elsevier)
  - ResearcherID - Web of Science (Clarivate Analytics)
A persistent digital identifier which distinguishes you from all other researchers and provides two basic services:

1. a registry to obtain a unique identifier and manage a record of activities
2. a platform that supports system-to-system communication and collates citation data

https://orcid.org/
Profile service: ORCiD

Advantages:

• Having an ORCID profile streamlines manuscript submission and grant applications

• Allows you to attach your identity to research objects such as articles, citations, datasets, patents, experiments and equipment

• Some journals now require you to provide an ORCID when submitting articles for publication
Profile service: Author ID

Scopus

• Assigns a unique number to each author in the Scopus database and groups together all their publications

• Accounts for variant versions of names by matching affiliations, addresses, subject areas, co-authors and dates of publication

• Automatically calculates citation
Profile service: Researcher ID

Web of Science

• Assigns a specific ID number to each registered researcher in order to reduce identity ambiguity

• Researchers can add the details of their publications to their individual profile and these are made available to anyone searching the database

• Citation metrics such as number of times cited and h-index are automatically calculated using data from Web of Science
• The research output of an individual researcher can be measured using both publication and citation counts

• A researcher’s publication count can be determined using bibliographic databases

• Citation counts can be determined using citation databases

• Can be biased by self-citation, one very highly cited paper or a large number of papers with no citations
Creating citation reports

The report function in citation databases will allow you to:

• Sort results by publication date, times cited, etc.

• Follow links to view citing articles

• Identify trends over time

• Exclude self-citations by the author from the report
Creating citation reports

A citation report or overview from these databases includes the following data, for the publications and time period indexed by the database:

- the number of documents cited
- the total number of citations received
- the total number of citing documents
- the total number of citations received per year for a specified time period
- the number of citations for each publication per year for a specified time period
- the author or publication's h-index and associated h-graph
Creating citation reports

- Depending on which database you use, this information is presented as a series of graphs and tables that can be copied into other documents.

- As citation data is not static, when publication or citation counts are included in documents, you should state which tool you used and the date the data was obtained.

- The citation report feature of both Scopus and Web of Science has limited export options, use ORCiD to collate results.
Using citation databases

Examples:

Scopus

and

Web of Science Core Collection
Scopus: Author search

1 author results

Author last name "Ryan", Author first name "U", Affiliation "Murdoch University"

- Show exact matches only
- Refine results
- Limit to
  - Source title
    - Acta Parasitologica
    - American Journal Of Tropical Medicine And Hygiene

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<th>Subject area</th>
<th>Affiliation</th>
<th>City</th>
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Scopus: Author search
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Scopus Author search

287 document results

Search within results...

Refine results

Access type
- Open Access (39)
- Other (248)

Year
- 2019 (1)
- 2018 (22)
- 2017 (23)

Document title

1. Giardia: an under-reported foodborne parasite
   - Ryan, U., Hijjawi, N., Feng, Y., Xiao, L.
   - International Journal for Parasitology, 49(1), pp. 1-11
   - Cited by: 0

2. Profiling the diversity of Cryptosporidium species and genotypes in wastewater treatment plants in Australia using next generation sequencing
   - Zahedi, A., Goffen, A.W., Gray, T., (-), Robertson, I., Ryan, U.
   - Science of the Total Environment, 644, pp. 635-648
   - Cited by: 1
Scopus: Author search
WoS CC: Author search
WoS CC: Author search

- Select relevant Research Domain OR All Research Domains
- Select Organization = Murdoch University
- Select Finish Search
Web of Science

Author Search Results: 220 Records  2 Article Groups
You searched for: AU=(Ryan U) AND OG=(MURDOCH UNIVERSITY) AND (SH=(LIFE SCIENCES BIOMEDICINE) OR WC=(Multidisciplinary Sciences)) ...More

Refine Results
Sort by: Date  Times Cited  Usage Count  Relevance  More

Filter results by:
- Open Access (133)

Publication Years
- 2018 (22)
- 2017 (22)
- 2016 (20)
- 2015 (22)
- 2014 (17)

1. Profiling the diversity of Cryptosporidium species and genotypes in wastewater treatment plants in Australia using next generation sequencing
   By: Zahedi, Nima; Gelton, Alexander W.; Greay, Toilet; et al.
   SCIENCE OF THE TOTAL ENVIRONMENT  Volume 644  Pages: 635-648  Published: DEC 30 2018
   Times Cited: 1
   Usage Count:
   View Abstract

2. Genome-wide analysis of Borrelia turicatae and 'Candidatus Borrelia tachyglossi' shows relapsing fever-like genomes with unique genomic links to Lyme disease Borrelia
   By: Gelton, Alexander W.; Margos, Gabrielle; Fingerle, Volker; et al.
   INFECTION GENETICS AND EVOLUTION  Volume: 66  Pages: 72-81  Published: DEC 2018
   Times Cited: 1
   Usage Count:
   View Abstract

Create Citation Report
WoS CC: Author search
Activity

Use Scopus and Web of Science to determine the publication and citation counts of yourself, your supervisor, or a researcher in your field.

Are the results the same?
Calculating individual researcher metrics

- These metrics are only indicative and do not provide a complete view of a researcher’s productivity.

- Some metrics attempt to allow for differences, but they should not be used to compare researchers from different fields or researchers at different stages of their careers.

- Very limited value in some disciplines.
Individual researcher metrics

Common:

- h-index (Hirsch Index)
- FWCI (Field Weighted Citation Impact)
**h-index**

**Calculation:** h-index = # of articles (n) in the database that have received the same number or more (n) citations over time

- h-index is not skewed by a single highly cited paper nor by a large number of poorly cited papers

- h-index is not a static value – need to specify date of h-index

- More than one tool can be used to calculate your h-index and the value may vary – need to specify source of h-index
Scopus: h-index
This author’s $h$-index

The $h$-index is based upon the number of documents and number of citations.

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Citations

Documents
WoS CC: h-index
Activity

Use Scopus and Web of Science to determine the h-index of yourself, your supervisor, or a researcher in your field

Are the results the same?
Calculation: the total citations received by a researcher's publications is compared to the average number of citations received by all other similar publications from the same research field for a defined three year period

- The global mean of the FWCI is 1.0, so an FWCI of 1.50 means 50% more cited than the world average; whereas, an FWCI of .75 means 25% less cited than the world average

- FWCI is calculated using SciVal and based on Scopus data

- FWCI is not a static value – need to specify date
Welcome to SciVal

Overview
Get a high-level overview of the research performance of your institution, other institutions, countries, and groups of researchers.

Benchmarking
Compare and benchmark your institution to other institutions, researchers, and groups of researchers using a variety of metrics.

Collaboration
Explore the collaboration network of both your institution and other institutions.

Trends
Get the current scientific trends to determine a new research strategy, find collaboration opportunities and rising stars.

Reporting
Create rich reports specifically tailored to support your institution's distinct research strategy.
Altmetrics

• Complement traditional impact measurement methods
• Good alternative for the humanities and social sciences
• Good alternative for books, conference papers, creative media, etc.
Altmetrics are alternative metrics used to measure the impact of research based on a variety of online activities, including:

- tweets, mentions, shares or links
- downloads, clicks or views
- saves, bookmarks, favourites, likes or up-votes
- reviews, comments, ratings, or recommendations
- readers, subscribers, watchers, or followers
There are two tools that aggregate alternative metrics from a wide variety of different websites and online tools:

1. Altmetric.com

2. Plum Analytics
Altmetrics: Altmetric.com

- Measures the attention an output receives from 17 different sources of attention

- Results display visually in the Altmetric donut:

  ![Altmetric Donut](image)

- Donut colours represent different sources and varying degrees of attention
Altmetrics: Altmetric.com

- Altmetric.com offers a free Altmetric it! bookmarklet for Chrome, Firefox and Safari, which allows researchers to view altmetric information for any online resource with a DOI.
Altmetrics: Altmetric.com

- Some databases and electronic journals, now have Altmetric widgets embedded in the pages for articles:
Altmetrics: Plum Analytics

- Plum Analytics collects impact altmetrics (PlumX) in captures, usage, citations, mentions, and social media.

- PlumX metrics are available for over 20 different types of research outputs including: journal articles, books, videos, presentations, datasets, source code and others.
Altmetrics: Plum Analytics

- This information is then displayed visually in the PlumX PlumPrint:

- The colours of the PlumX PlumPrint each represent a different source of attention

- Plum Analytics collects metrics for individual research artifacts, but also can also provide data for laboratories, departments and other research groups
Some databases and electronic journals, now have Plum Analytics widgets embedded in the pages for articles.

A PlumX link will allow you to view the full article-level altmetrics.
Determining measures of esteem

Provide evidence of research quality and may include:

- awards and prizes
- rankings in prestigious lists
- research fellowships
- patents or other commercial output
- successfully completed research grants or projects
- editorial or reviewer role for a significant journal or reference work
- keynote and plenary addresses at conferences, conference organisation or presentations at significant international conferences
Help: Ask our Librarians

Ask our Librarians

Need help finding resources for your assignments or building your research strategies?

Our Subject Librarians are skilled information professionals who can provide study, teaching and research support. We can provide support on:

- finding scholarly information to support research
- library skills training
- managing and organising research sources using EndNote
- referencing sources in assignments
- scholarly publishing, publication impact, open access and copyright.

Ask us a question

For quick questions via email, use the enquiry form below. For Murdoch students and staff only.

goto.murdoch.edu.au/askalibrarian
Help: Consultations

- Our librarians provide further research support and skills training for academic staff, researchers and research students
- You can arrange a small group or individual consultation
Open Researcher and Contributor iD

Please go to:

https://orcid.org
DISTINGUISH YOURSELF IN THREE EASY STEPS

ORCID provides a persistent digital identifier that distinguishes you from every other researcher and, through integration in key research workflows such as manuscript and grant submission, supports automated linkages between you and your professional activities ensuring that your work is recognized. Find out more

1. REGISTER
   Get your unique ORCID identifier [Register now!]
   Registration takes 30 seconds.

2. ADD YOUR INFO
   Enhance your ORCID record with your professional information and link to your other identifiers (such as Scopus or ResearcherID or LinkedIn).

3. USE YOUR ORCID ID
   Include your ORCID identifier on your webpage, when you submit publications, apply for grants, and in any research workflow to ensure you get credit for your work.
Register for an ORCID iD

ORCID provides a persistent digital identifier that distinguishes you from every other researcher and, through integration in key research workflows such as manuscript and grant submission, supports automated linkages between you and your professional activities ensuring that your work is recognized.

Per ORCID’s terms and conditions, you may only register for an ORCID iD for yourself.

First name

Last name (Optional)

Primary email

Additional email (Optional)

Add another email

Password

8 or more characters

1 letter or symbol

1 number

Confirm Password
Thank you for registering. We have sent verification messages to each of your registered email addresses. You will need to verify your primary email address before you can begin adding information manually to your ORCID record.

Resend verification email

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Penelope Sherrell

ORCID ID
[https://orcid.org/0000-0002-6705-5255](https://orcid.org/0000-0002-6705-5255)

- Display your ID on other sites
- Public record print view
- Get a QR Code for your ID
- Also known as

**Biography**

- **Employment (0)**
  - Add employment
  - Sort

You haven’t added information to this section yet; add an employment now

- **Education and qualifications (0)**
  - Add qualification
  - Add education

You haven’t added information to this section yet; add an education or a qualification now

- **Invited positions and distinctions (0)**
  - Add invited position
  - Add distinction

You haven’t added information to this section yet; add a distinction or an invited position now

- **Membership and service (0)**
  - Add service
  - Add membership

You haven’t added information to this section yet; add a membership or a service now

- **Funding (0)**
  - Add funding

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ORCID works with our member organizations to make it easy to connect your ORCID ID and link to information in their records. Choose one of the link wizards to get started. More information about linking works

Work type: All
Geographical area: All

Airiti
Enables users to import metadata from Airiti, including journal papers, proceedings, dissertation...

Australian National Data Service (ANDS) Registry
The Australian National Data Service (ANDS) Registry allows researchers to connect their ORCID ...

BASE - Bielefeld Academic Search Engine
BASE is one of the world’s most voluminous academic search engir

Crossref Metadata Search
Import your publications from Crossref’s authoritative, publisher-s

ResearcherID
This ResearcherID publication wizard is temporarily unavailable while ResearcherID is moving to...

Scopus - Elsevier
Import your Identifier, profile and publications. The wizard helps you find the correct Scopus pr...

You haven’t added any works, add some now
Thank you for registering. We have sent verification messages to each of your registered email addresses. You will need to verify your primary email address before you can begin adding information manually to your ORCID record.

Resend verification email

Penelope Sherrell

ORCID ID
https://orcid.org/0000-0002-6705-5255

Employment (0)
You haven't added information to this section yet; add an employment now

Education and qualifications (0)
You haven't added information to this section yet; add an education or a qualification now

Invited positions and distinctions (0)
You haven't added information to this section yet; add a distinction or an invited position now

Membership and service (0)
You haven't added information to this section yet; add a membership or a service now

Funding (0)

Display your ID on other sites
Public record print view
Get a QR Code for your ID
Also known as

Country

Help