



# How open science is transforming the global research ecosystem

Better Data. Better Decisions. Better Outcomes.

**University of Pretoria UP Open Access Colloquium 2021**

Melissa Badenhorst

Sales & Marketing Director: WorldWide Information Services

Business Partner: Clarivate

# Open Science in Research Ecosystem

- Over last decade changes in the ecosystem have led to a new emphasis on **transparency**, **visibility** and **accessibility** of research
- Driving factors to achieve this: Open Science, Open Research and Open Access
- Open Access = 1 aspect of Open Research
- Open Research synonymous with Open Science
- Open Research = Framework of practices to achieve transparency, collaboration and accessibility across entire research life cycle

# Open Access

Free, unrestricted access to published research outputs



## 2 Main routes

- Gold (including Hybrid)
- Green



**Gold OA**, final published version of article is immediately available by publisher's website



## Green OA

typically accepted manuscript after peer review and is available in a repository. Often embargo period



## Goes beyond free to read

covers the right to [share](#) and [reuse](#) content. Exact terms of reuse depend on OA license used

**Open Data:** *Open data is data that can be freely used, re-used and redistributed by anyone - subject only, at most, to the requirement to attribute and sharealike*



## Availability and Access

- Available as a whole and at no more than a reasonable reproduction cost
- Preferably by downloading over the internet
- Available in a convenient and modifiable form



## Re-use and Redistribution

- Provided under terms that permit re-use and redistribution
- Including the intermixing with other datasets.



## Universal Participation

- Everyone must be able to use, re-use and redistribute
- no discrimination against fields of endeavour or against persons or groups

## Driving factors behind Open Science

- Global movement driven by all corners:
  - Publishers
  - Funders
  - Researchers
- Accelerating move to OA is primarily driven by funders, don't want funded reach locked behind paywall subscriptions
- Success story: Human genome program, paper published 21 years ago. 1000's of researchers made their sequence data available
- This enable real-time collaboration around the globe
- Allowed companies to develop genetic tests

## Barriers

- Current rule system focuses on published article
- Researchers are pressured to published in high-valued publications, not necessarily OA
- Very few incentive for researchers to share data early
- Hard to publish negative results
- Solution: sharing of research outputs throughout the research life cycle
- Sharing of early datasets is key for transparency and reusability
- Challenge of Open Data repositories – enormous variation in searchability and data structure

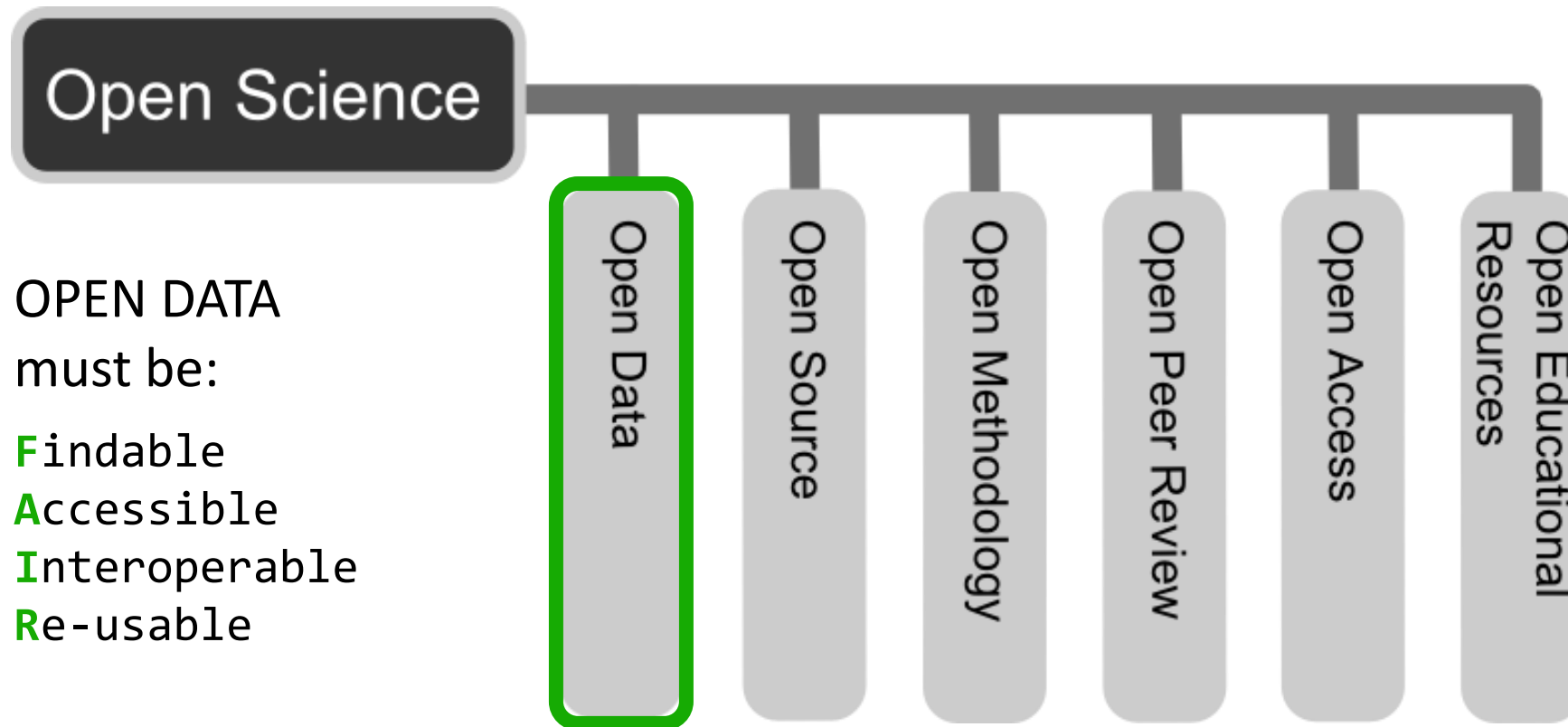
## Plan S

- Aim: accelerate transition from traditional subscriptions to full open access
- In 2021 any researcher that receives funding from organization signed of Plan S, must publish research outputs in OA publications or OA platforms or make a version immediately available in OA repository without embargo
- Publishers thus had to introduce Read & Publish or transformative deals at institution and national level
- This enabled researchers to continue to publish in OA journals or OA Hybrid journals and still comply to Plan S

# Clarivate

Promoting Open Science and easing complexities of Open Access

One of the key blocks in the Open Science model is Open Data



The Data Citation Index is assisting researchers with each of these



# Data Citation Index

Promoting Open Science

The European Horizon 2020 initiative is driving Open Science.

**HORIZON 2020 GRANTEES ARE REQUIRED**



take measures to ensure open access to the data underlying their scientific publications

provide open access to any other research data of their choice

Horizon 2020 grantees are encouraged to also share datasets beyond publication

# Data Citation Index

- Supports the discoverability of Open Data
- Covers datasets, repositories and software
- Improves discovery, use and attribution of data
- Supports FAIR data sharing
- Integrated with literature indexed in Web of Science

<input type="checkbox"/> 1	<p>Genome-wide analysis of gene expression during adipogenesis in human adipose-derived stromal cells reveals novel patterns of gene expression during adipocyte differentiation</p> <p><a href="#">Ambele, MA</a>; <a href="#">Dessels, C</a>; (...); <a href="#">Pepper, MS</a> May 2016   <a href="#">STEM CELL RESEARCH</a> 16 (3) , pp.725-734</p> <p>We have undertaken an in-depth transcriptome analysis of adipogenesis in human adipose-derived stromal cells (ASCs) induced to differentiate into adipocytes in vitro. Gene expression was assessed on days 1, 7, 14 and 21 post-induction and genes differentially expressed numbered 128, 218, 253 and 240 respectively. Up-regulated genes were ... <a href="#">Show more</a></p> <p> <a href="#">Free Full Text from Publisher</a> <a href="#">View Associated Data</a> ...</p>	<p>55 Citations</p> <hr/> <p>40 References</p> <hr/> <p><a href="#">Related records</a></p>
<input type="checkbox"/> 2	<p>Late Glacial Demographic Expansion Motivates a Clock Overhaul for Population Genetics</p> <p><a href="#">Hoareau, TB</a> May 2016   <a href="#">SYSTEMATIC BIOLOGY</a> 65 (3) , pp.449-464</p> <p>The molecular clock hypothesis is fundamental in evolutionary biology as by assuming constancy of the molecular rate it provides a timeframe for evolution. However, increasing evidence shows time dependence of inferred molecular rates with inflated values obtained using recent calibrations. As recent demographic calibrations are virtually nc ... <a href="#">Show more</a></p> <p> <a href="#">Free Full Text From Publisher</a> <a href="#">View Associated Data</a> ...</p>	<p>27 Citations</p> <hr/> <p>105 References</p> <hr/> <p><a href="#">Related records</a></p>

# Data Citation Index

How it helps

## RESEARCHERS

- Save time looking for data by searching across repositories in one place
- Reach more people, have greater impact ([Horizon 2020](#))
- Track and get recognition for shared data
- Avoid duplication of efforts ([Horizon 2020](#))

## LIBRARIANS

- Promote the value and the importance of sharing data
- Provide a trusted reference for faculty of where to deposit their data
- Preserve data for future researchers ([Horizon 2020](#))
- Validate attribution of single datasets by researchers of institute

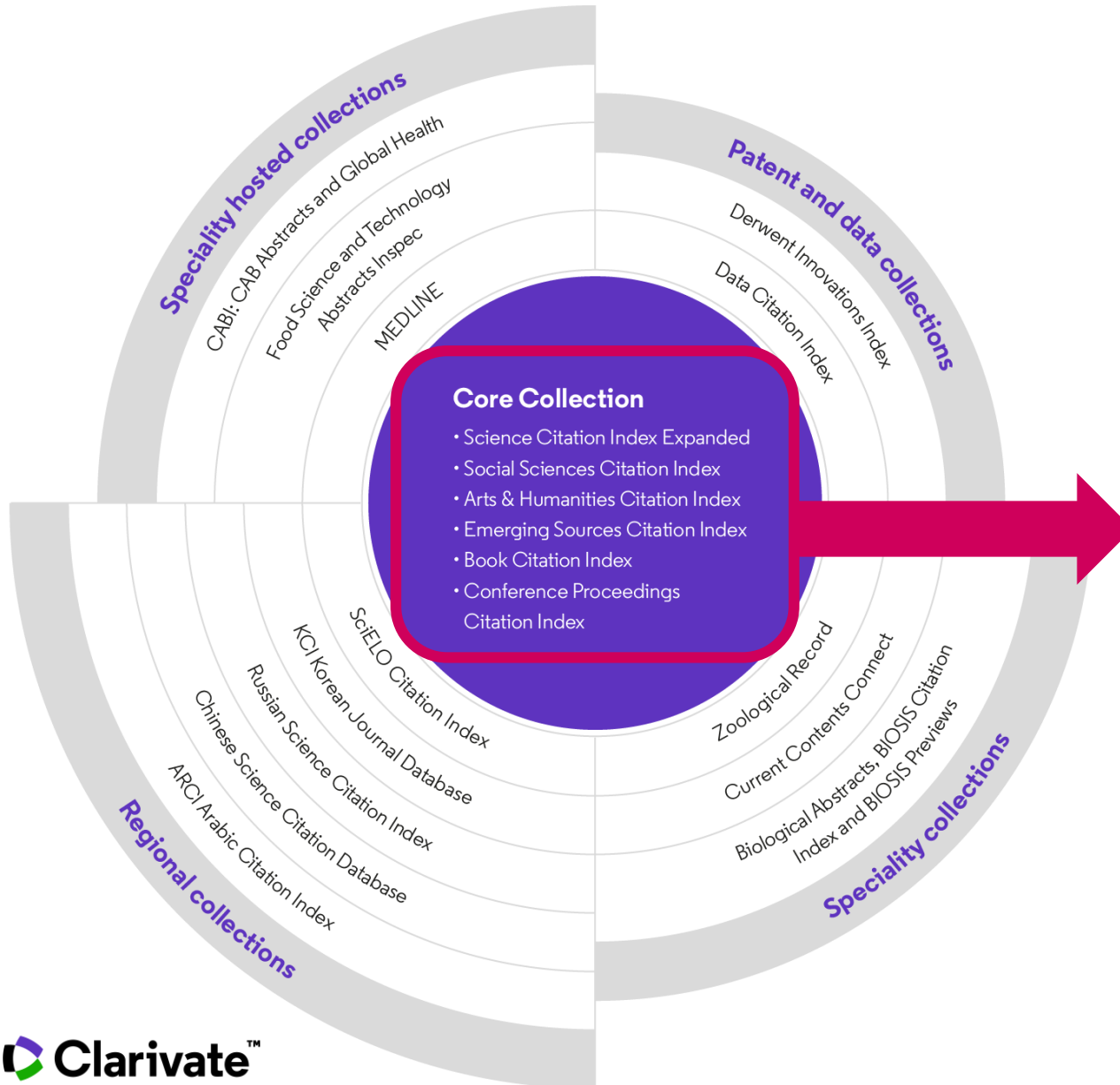
## FUNDING MANAGERS

- Assess compliance with grant requirements
- Discover repositories available in a specific subject area

# Open Access Visibility in Web of Science

# Web of Science Core Collection

Contributing to our comprehensive view: across sciences, social sciences, and arts & humanities



**21,800+**

Journal titles

**5,100+**

Open Access (DOAJ) titles

**226,000+**

Conference proceedings

**14.1 million+**

Open Access Records

**126,000+**

Books

**Backfiles to 1900**

With cover-to-cover indexing

**254**

Web of Science subject categories

**1.8 billion +**

Cited References

**82 million+**

Records

**17 million +**

Records with funding data in the Core Collection

# Web of Science

Helps you find full text from quality Open Access journals and measures the impact of your institution's investment in Open Access

## Journal Citation Reports

In addition to the profile information of journals, the proportion of Open Access content is also visualised.

## Master Journal List

A searchable list of Web of Science journals, containing submission, Open Access and peer review data.

## VIVO Services

We are a corporate sponsor of VIVO, an Open Source web application used to showcase institutions.

## EndNote Click

Single click access to full text via both subscription content and Open Access.

## Data Citation Index

Providing quick access to research data. We are also DataCite members, and endorse the Force 11 joint declaration on data citation.

## Publons

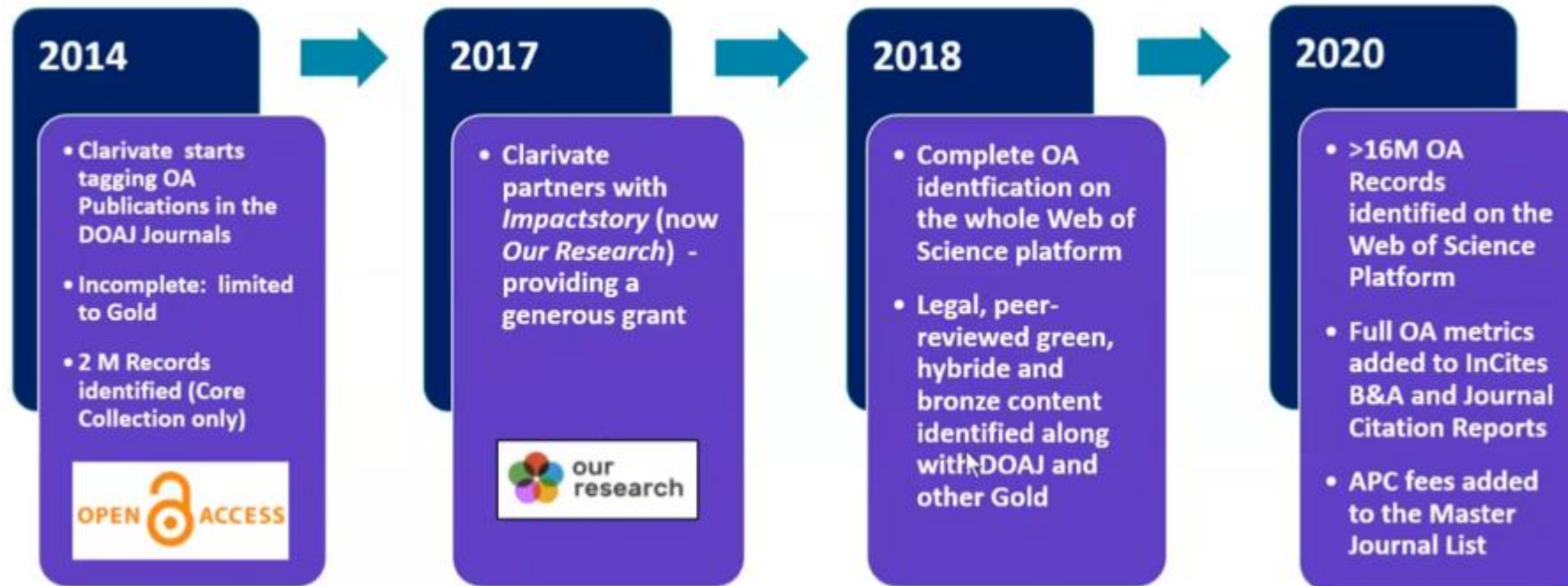
Publons provides a free profile solution for researchers and reviewers. It is also pioneering the Transparent Peer Review.

## InCites B & A

Allows benchmarking and analysis of Open Access performance, across individuals, organisations, funders, publishers and countries.

# Evolution of Open Access in Web of Science

Helps you find full text from quality Open Access journals and measures the impact of your institution's investment in Open Access



# Web of Science

Various types of OA

Updated weekly

Main links are displayed on search page

Filters are provided for all OA types

- 3 Social Support Experiences of Spousally Bereaved Individuals in a South African Township Community: The Botho/Ubuntu Perspective

Thomas, TA  
Sep 24 2021 | FRONTIERS IN PSYCHOLOGY 12

55  
References

Enriched Cited References

Bereavement is a deeply personal experience that is also shaped by one's socio-cultural context. This qualitative study explored the social support experiences and needs of spousally bereaved individuals in a South African township. The botho/ubuntu philosophical framework was used to interpret participants' experiences in this regard ... [Show more](#)

S-F-X Free Full Text from Publisher

[Related records](#)

Publishers **New**

- Elsevier
- Springer Nature
- Wiley
- Taylor & Francis
- Aosis

[See all](#)

Funding Agencies

Open Access **i**

Editors

Group Authors

Research Areas

Countries/Regions

articles that revealed government bodies and the money they can generate and the econom

## Levels of Open Access

**Gold:** Identified as having a Creative Commons (CC) license by Our Research Unpaywall Database.

**Gold Hybrid:** Identified as having a Creative Commons (CC) license by Our Research but are not in journals listed as Gold.

**Free to Read:** These are free-to-read or public access articles located on a publisher's site.

**Green Published:** Final published versions of articles hosted on an institutional or subject-based repository.

**Green Accepted:** Accepted manuscripts that are peer reviewed and final, but may not have been through the publisher's copy-editing or typesetting.

**Green Submitted:** Original manuscripts submitted for publication, but have not been through a peer review process.

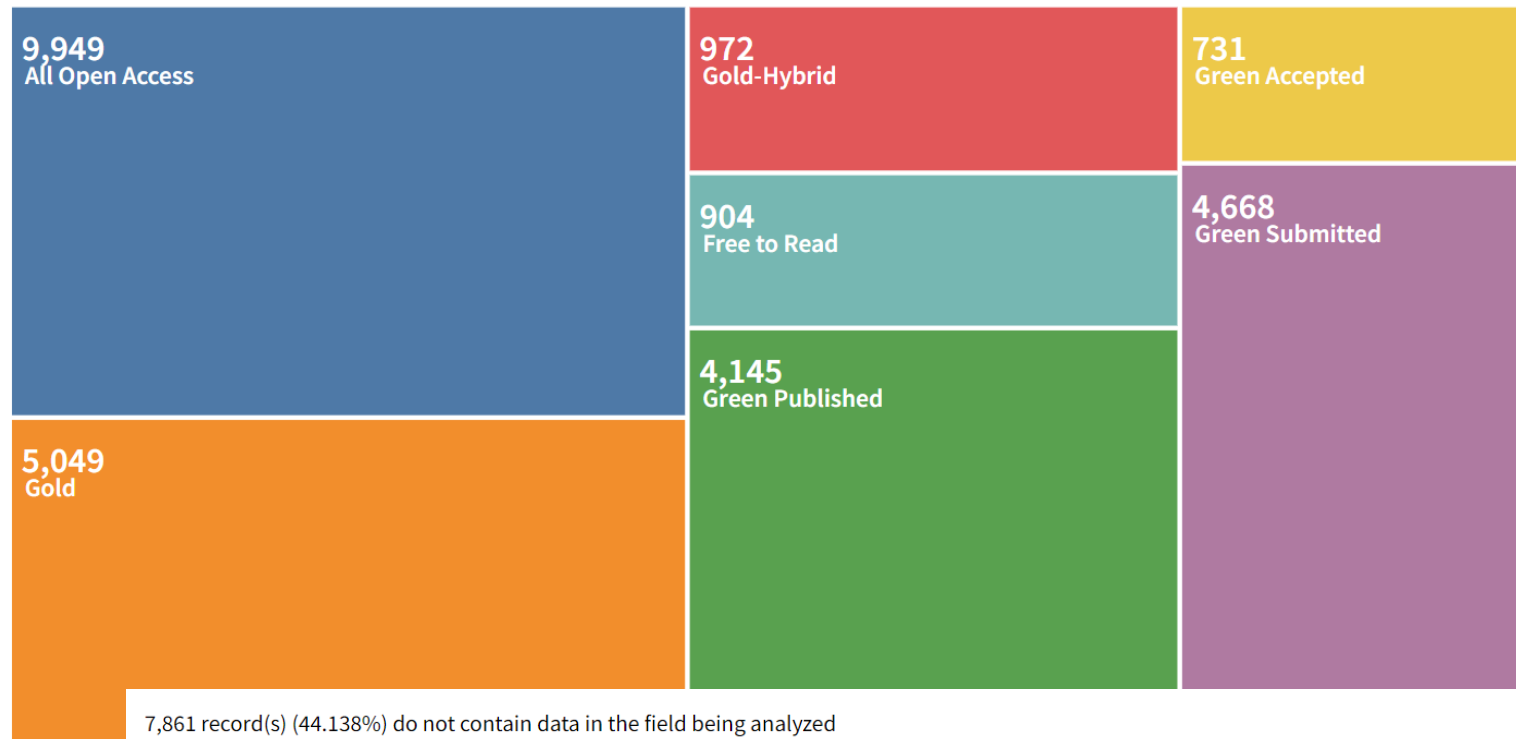
Learn more about open access from our [help page](#).



# Analyze Results

Provides easy way to view OA breakdown

Example of UP OA research output 2016 - 2021



7,861 record(s) (44.138%) do not contain data in the field being analyzed

Select All	Field:	Record Count	% of 17,810
<input type="checkbox"/>	Open Access		
<input type="checkbox"/>	All Open Access	9,949	55.862%
<input type="checkbox"/>	Gold	5,049	28.349%
<input type="checkbox"/>	Gold-Hybrid	972	5.458%
<input type="checkbox"/>	Free to Read	904	5.076%
<input type="checkbox"/>	Green Published	4,145	23.273%
<input type="checkbox"/>	Green Accepted	731	4.104%
<input type="checkbox"/>	Green Submitted	4,668	26.210%

Analyze Data Table

Refining will return you to the search results

Refine results by selected

Exclude results by selected

Data rows displayed in table

All data rows (up to 100,000)

Download data table

# Web of Science Export

OA status can be exported along with other metadata

This is done by selecting “Full record” option from export option

Or select “Open Access” option in ‘Marked List’

OA information also included in Expanded API

Select All |

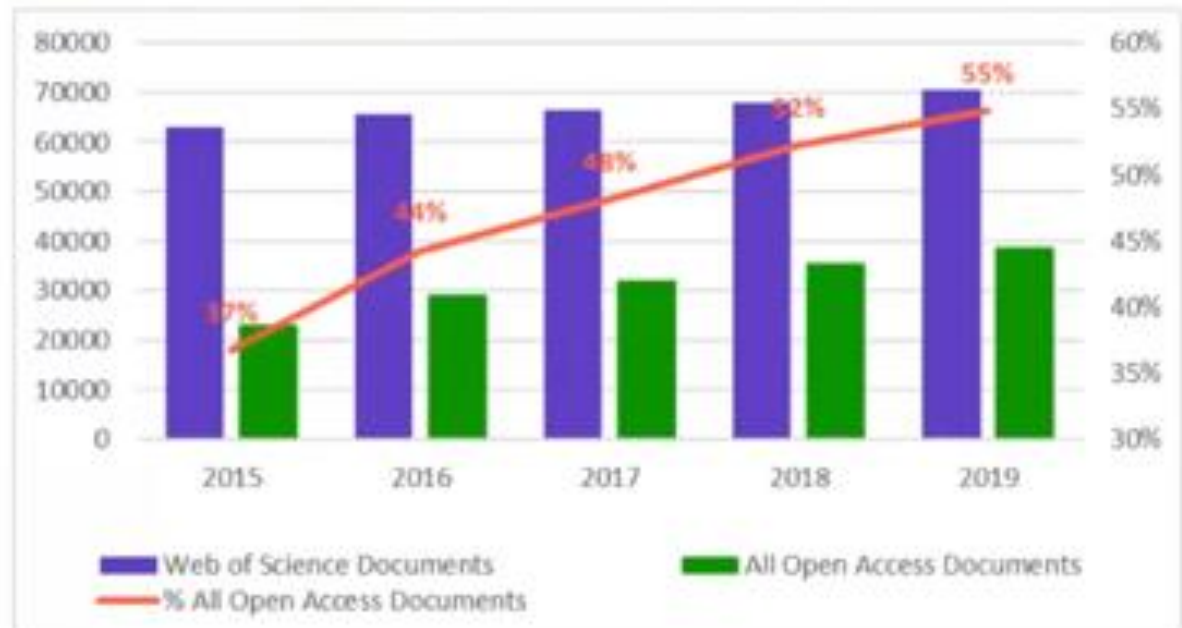
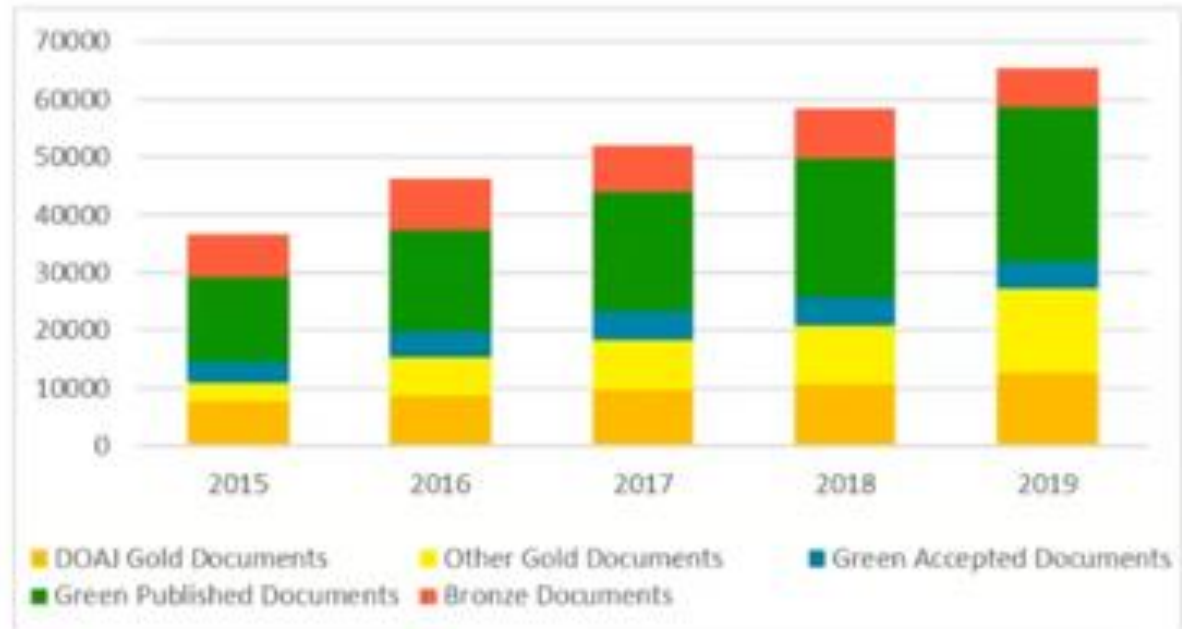
<input checked="" type="checkbox"/> Author(s) / Editor(s)	<input checked="" type="checkbox"/> Title	<input checked="" type="checkbox"/> Source	<input type="checkbox"/> Conference Information
<input type="checkbox"/> Abstract*	<input type="checkbox"/> Cited References*	<input type="checkbox"/> Document Type	<input type="checkbox"/> Conference Sponsors
<input type="checkbox"/> Addresses	<input checked="" type="checkbox"/> Times Cited	<input type="checkbox"/> Keywords	<input type="checkbox"/> Publisher Information
<input checked="" type="checkbox"/> ISSN / ISBN	<input type="checkbox"/> Cited Reference Count	<input type="checkbox"/> Source Abbrev.	<input type="checkbox"/> Page Count / Chapter Count
<input type="checkbox"/> IDS Number	<input type="checkbox"/> Language	<input type="checkbox"/> Web of Science Categories	<input type="checkbox"/> Research Areas
<input type="checkbox"/> Funding Information	<input checked="" type="checkbox"/> Accession Number	<input type="checkbox"/> Author Identifiers	<input type="checkbox"/> Usage Count
<input checked="" type="checkbox"/> PubMed ID	<input checked="" type="checkbox"/> Open Access	<input type="checkbox"/> Hot Paper	<input type="checkbox"/> Highly Cited

UT (Unique WOS ID)	Pubmed Id	Open Access Designations
WOS:000613473600001	33517898	DOAJ Gold, Green Published
WOS:000613468800001		DOAJ Gold
WOS:000613488000001	33517893	DOAJ Gold, Green Published
WOS:000613479000001	33517520	DOAJ Gold
WOS:000612399500001		
WOS:000605663000001		Bronze
WOS:000613471400001	33516267	DOAJ Gold, Green Published
WOS:000613483300001	33516216	DOAJ Gold, Green Published
WOS:000613469600001	33516237	DOAJ Gold, Green Published
WOS:000613499000001	33516217	DOAJ Gold, Green Published

```
"UID": "WOS:000600150800020",  
"static_data": {  
  "summary": {  
    "pub_info": {  
      "coverdate": "DEC 11 2020",  
      "vol": 11,  
      "journal_oas_gold": "Y",  
      "pubyear": 2020,
```

# Web of Science Export

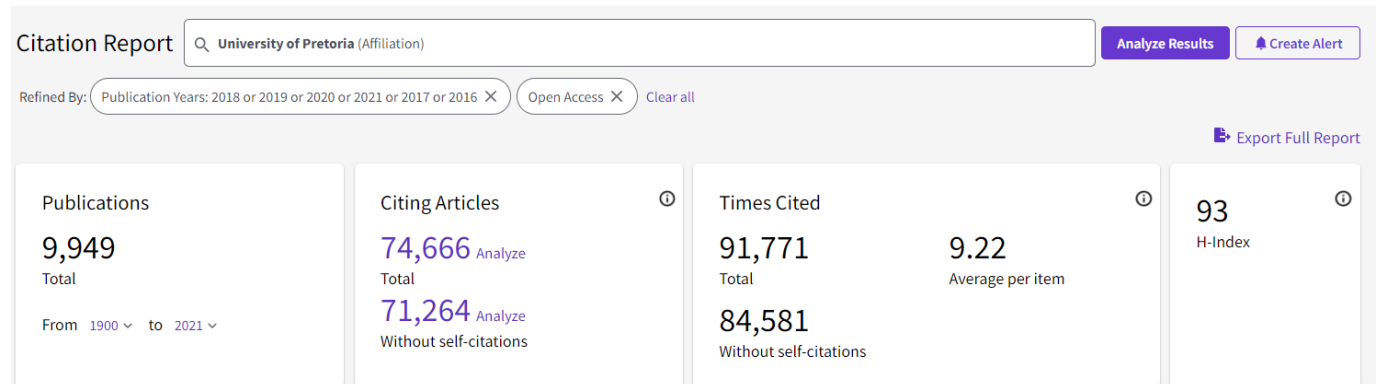
Graphs can be created with exported data



# Citation Analyses

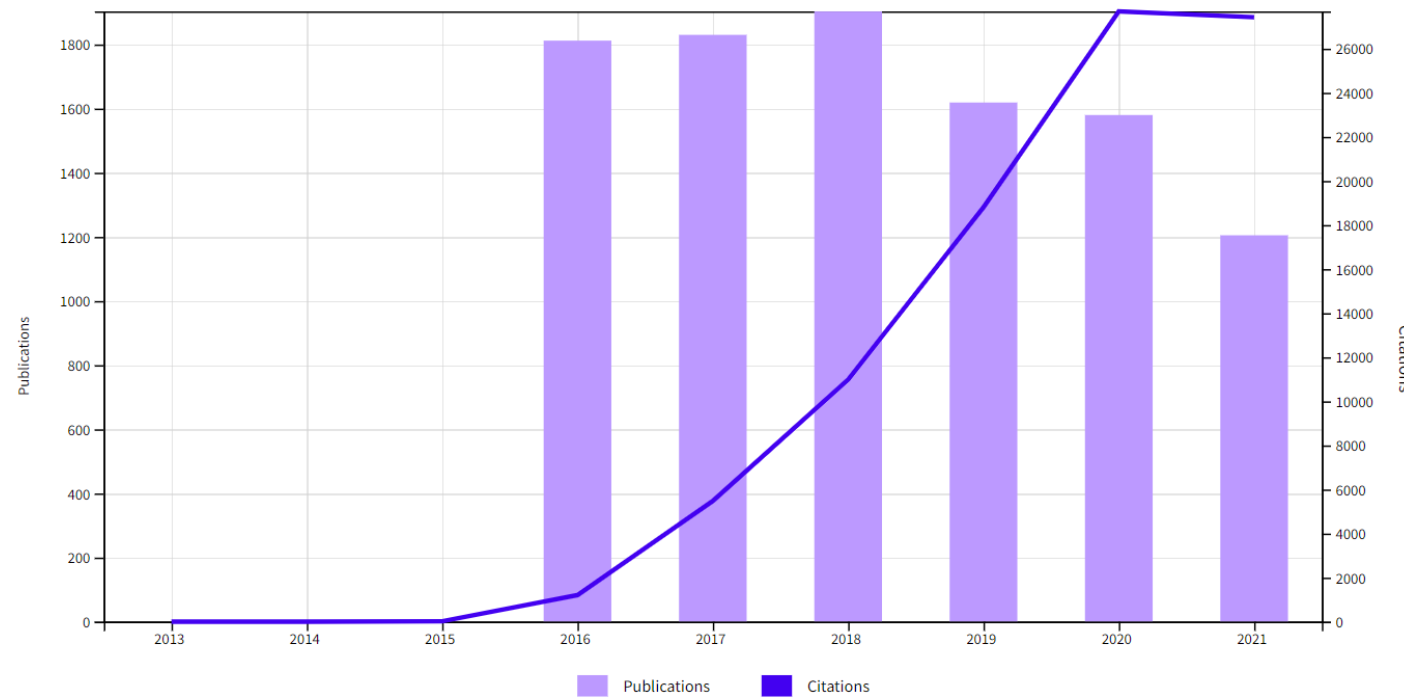
Provides easy way to view OA breakdown

Example of UP OA research output 2016 - 2021



Times Cited and Publications Over Time

[DOWNLOAD](#)



# OA Full text Linking with Endnote Click

Free browser plug-in

One-click access to Full text

Integrates with Library holdings

Travels with Researcher

Used worldwide by over 750k researchers

## How does EndNote Click work?

### Securely connect to your library's journal subscriptions

You are given the option to login with your library credentials. EndNote Click stores these credentials in your browser. They are not stored on our servers and are never shared, or used for any other purpose except accessing your library subscriptions.



### Subscription and Open Access combined

EndNote Click harnesses your library subscriptions to get you the highest quality PDFs. When your subscriptions do not grant you access, EndNote Click will search for an open access alternative from its vast database of Open Access articles.



### One-click access to PDFs on article pages

When you visit an article page on any academic website, EndNote Click searches for full text PDFs and gives you one-click access via a button that is in a consistent, convenient place.



### One-click access to PDFs from search pages

When using various academic search engines such as Web of Science and PubMed, EndNote Click searches for full texts PDFs and gives you one-click access.



# The Smart Extension

Click the Plugin icon and see:

Title, Author, Journal, year

Citation Count from the Web of Science Core Collection  
the pdf version, source and direct link

Open PDF's in Endnote Click Locker

Download the PDF's

Export the PDF's to your reference manager

When using various academic search engines such as Web of Science and PubMed, EndNote Click searches for full texts PDFs and gives you one-click access.



1 Vanadium geochemistry in the biogeosphere -speciati...

**View PDF**

- Your EndNote Click Locker
- Publisher version
- Open Access version

View PDF

Free Full Text From Publisher \*\*\*

---

2 Localization, ligand environment, bioavailability and tr...

**View PDF**

**Ganoderma lucidum (Reishi mushroom) for c**

1 Jin X, Ruiz Beguerie J, Sze DM, Chan GC.

Cite **View PDF** 2016 Apr 5;4(4):CD007731. doi: 10.1016/j.artice. Review.

Share  Your EndNote Click Locker  Publisher version  Open Access version

...inning the references of arti...inal **Mushrooms** and contac...One study recorded minim...

**View PDF**

---

**Ganoderma lucidum Polysaccharides as An A**

2 Sohretoglu D, Huang S.

Cite Anticancer Agents Med Chem. 2018;18(5):667-674. doi: 10.1080/15701754.2018.151563 **Free PMC article.** Review.

Share **The mushroom** Ganoderma lucidum (G. lucidum) has been various diseases and to promote health and longevity. Clir lucidum as an alternative adjuvant therapy in cancer patier

**View PDF**

# Research Evaluation in Open Access

# Ever growing scholarly publishing landscape



3 million papers  
per year<sup>1</sup>



42,500 scholarly  
journals<sup>1</sup>



14,785 open access  
journals<sup>2</sup>



13,000 “predatory”  
journals<sup>3</sup>

<sup>1</sup>2018 STM Report

<sup>2</sup>Listed in [DOAJ](#) June 16, 2020

<sup>3</sup>May 2020 [Economist article](#)



# Ever growing scholarly publishing landscape

How do researchers and librarians at your institution assess scholarly journals?



**Find journals consistent with your values to showcase your research**



**Ensure your library collections support rigorous research and teaching**



**Make data-driven decisions about your open access strategy**

# Web of Science Journal Citation Reports (JCR)

Make confident decisions with objective, unbiased journal statistics from publisher-neutral experts



## Selectivity

Quickly find a list of the most influential and best quality journals in the sciences, social sciences and arts and humanities. Each journal profiled in JCR has met the **rigorous quality and impact standards** documented in the Web of Science Core Collection [editorial selection process](#).



## Quality control

Work with credible metrics derived from accurate and complete data. Journals displaying evidence of **excessive self-citation and citation stacking are suppressed** from Journal Citation Reports to support research integrity in scholarly publishing.



## Transparency

Easily uncover the **relationship between article and journal citations** to better understand a journal's role in the network of scholarly communications. Access to article data helps you follow best practices for research evaluation.



## Multiple ways to view impact

Evaluate journals with a multidimensional view of a journal's impact and influence. View citation metrics alongside **descriptive open access statistics and contributor information** that provide a holistic picture of each journal.

# Transparent open data in the JCR

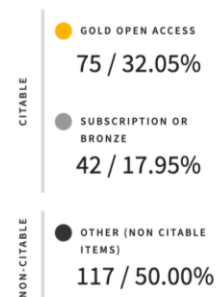
## Open Access (OA)

Export

The data included in this tile summarizes the items published in the journal in the JCR data year and in the previous two years. For example, in the 2018 JCR data, released in June 2019, the open access data shows the publication model (OA or subscription) of materials published in 2016, 2017 and 2018, and citations in 2018 to these items. All three tiles in this section of the profile page—OA data, Contributions by Country/Region, and Contributions by Organization—use this three-year set of published items to provide descriptive analysis of the content and community of the journal. [Learn more](#)

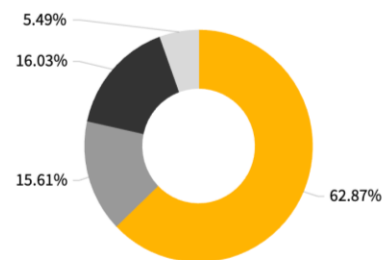
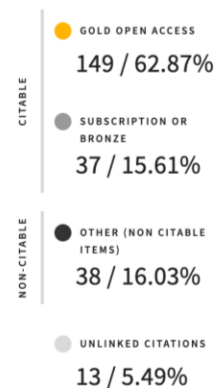
### Items

TOTAL CITABLE 117  
% OF CITABLE OA 64.10%



### Citations\*

TOTAL CITABLE 186  
% OF CITABLE OA 80.11%



\*Citations in 2020 to items published in [2018 - 2020]

- This feature introduces descriptive data in the Journal Citation Reports. The tile displays a breakdown of the journal's articles by Open Access type.
- The goal is to increase transparency around how these articles contribute to a journal's citations

# Rely on Journal Citation Reports to identify the right journals



Conduct research evaluation more responsibly with multidimensional journal indicators and context for the numbers



Find the best-fit journals for your manuscript using with a tool that helps you consider audience, topical relevance, open access and citation impact



Ensure that your library collections support rigorous research and teaching using publisher-neutral data produced by objective experts



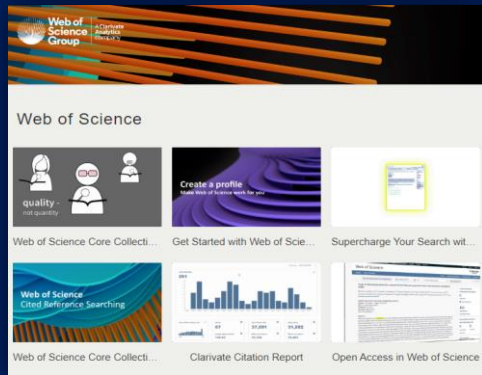
Obtain the transparency you need to make data-driven decisions about your open access strategy with ease and speed using an intuitive tool

# Resources for teaching and learning

Stay up to date on product developments, and provide on-demand support for students and faculty

## Web of Science Learning Page

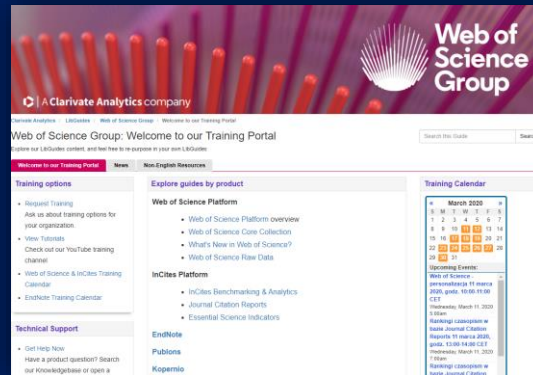
Point students and faculty to “how to” content available 24/7.



[Learning Page](#)

## LibGuides

Save time updating your LibGuides by reusing pages from ours.



[clarivate.libguides.com/home](https://clarivate.libguides.com/home)

## Librarian Toolkit

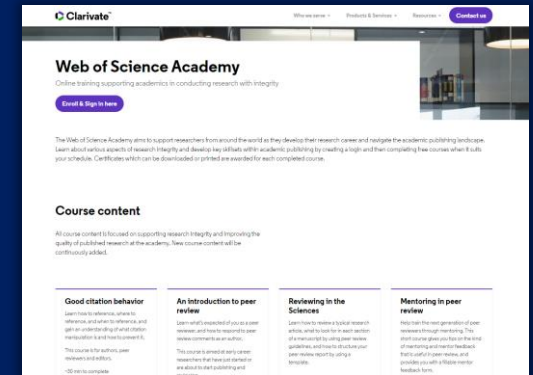
Quick links to individual databases, factsheets, and more.



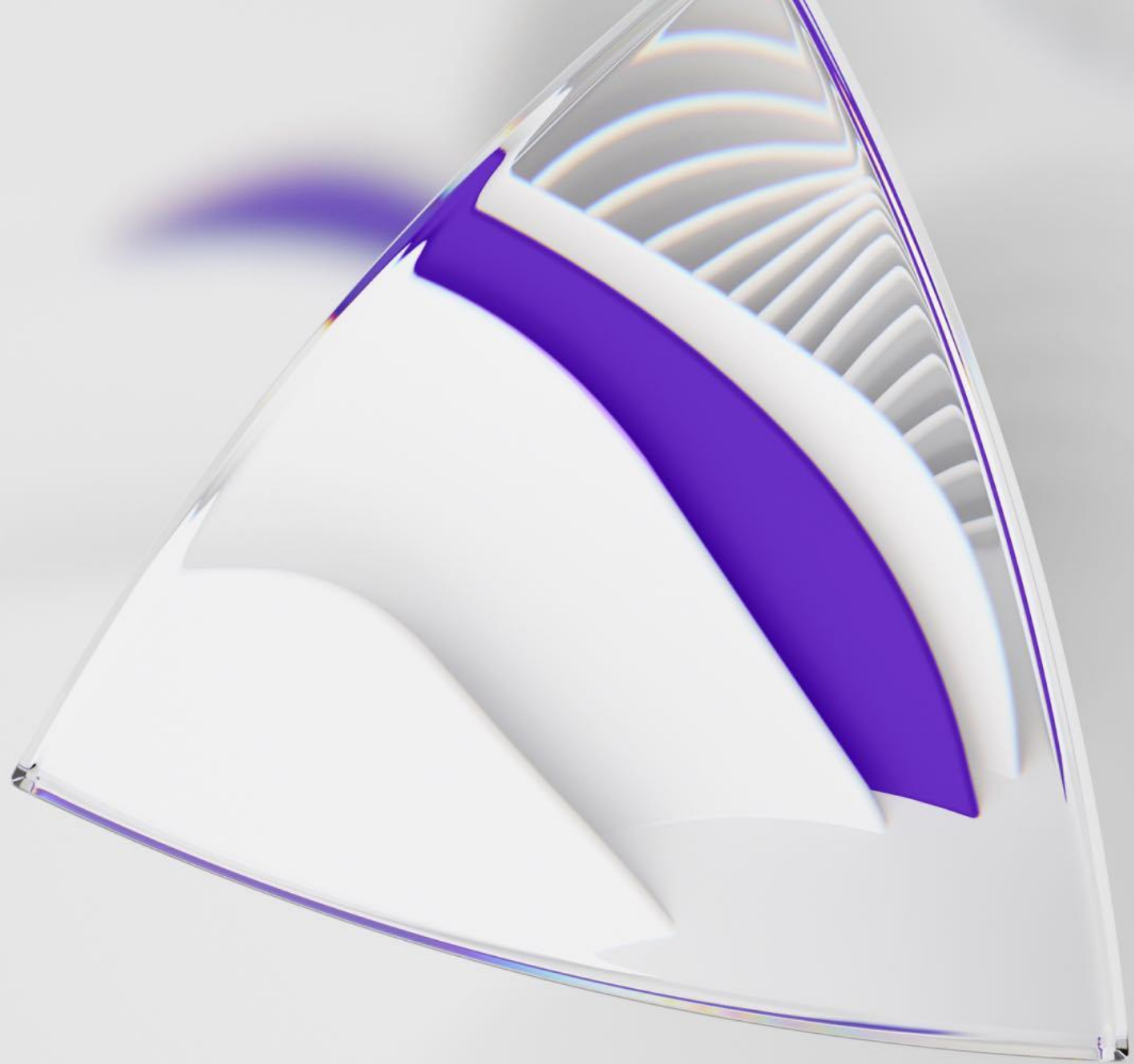
[View Toolkit](#)

## Web of Science Academy

Online training supporting academics in conducting research with integrity



[Join our Web of Science Academy](#)



Melissa Badenhorst  
Melissa.Badenhorst@wwis.co.za  
WorldWide Information Services