Workshop Training Materials
http://libguides.nus.edu.sg/researchimpact/workshop

Citation Metrics Workshop 18 and 29 Apr 2017

- How to use Web of Science to find times cited and h-index of researchers
- How to use Scopus to find times cited and h-index of researchers
- How to use Web of Science to find number of papers published, times cited etc by a institution or a department.

Workshop Training Materials

- Scopus
- Web of Science
- Google Scholar
- ScVI

Click on the links below for step-by-step guides on how to find times cited and h-index of individual researchers in Scopus:

- Basic Search Techniques for Scopus (covers indexed works)
- Advanced Search Techniques for Scopus (covers non-indexed works)

Manage your Publications with ResearcherID
- Using ResearcherID for Publication
Recommended browsers

1. Mozilla Firefox

2. Enter your NUSNET ID and password when prompted
Research Impact Measurement and You
SciVal Workshop

Bibliometric Resource Team
NUS Libraries
25 April 2018
Scholarly Communication Teams

Goals

- To support our researchers’ efforts at each stage of the research life cycle
- To increase the visibility and impact of our researchers’ works

Some services

- Workshops and consultations on research impact measurement and journal metrics
- Mediated deposits for publications and research data
- Workshops on topics related to publishing, copyright, etc
- DOI generation

For more information, please visit SCOMM@NUS Libraries
# Bibliometrics Resource Team

<table>
<thead>
<tr>
<th>School of Business</th>
<th>Richard Ho, <a href="mailto:clbhcyr@nus.edu.sg">clbhcyr@nus.edu.sg</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>FASS / SDE</td>
<td>Hayati Abdul, <a href="mailto:hayati@nus.edu.sg">hayati@nus.edu.sg</a></td>
</tr>
<tr>
<td></td>
<td>Gerrie Kow, <a href="mailto:gerrie@nus.edu.sg">gerrie@nus.edu.sg</a></td>
</tr>
<tr>
<td>Law</td>
<td>Bissy Ithack, <a href="mailto:bissyithack@nus.edu.sg">bissyithack@nus.edu.sg</a></td>
</tr>
<tr>
<td>Science</td>
<td>Magdeline Ng, <a href="mailto:magdeline.ng@nus.edu.sg">magdeline.ng@nus.edu.sg</a></td>
</tr>
<tr>
<td>YLLSOM</td>
<td>Amy Chou, <a href="mailto:amy.chou@nus.edu.sg">amy.chou@nus.edu.sg</a></td>
</tr>
</tbody>
</table>
Learning Outcomes

1. Learn to use SciVal

2. Use SciVal’s Benchmarking module for purposes such as Promotion & Tenure (P&T) and departmental benchmarking

3. Explore Topics of Prominence & Trends to identify opportunities for collaboration
Using Research Metrics

1. Research impact metrics are just one set of criteria (i.e. \textit{quantitative}) for evaluating the quality of a researcher or department.
2. Other \textit{qualitative} criteria should also be taken into account.
3. Use \textit{more than one} research metric for comparison.
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Research programme: Explanation of one's research standing in the field</td>
<td>13</td>
</tr>
<tr>
<td>10</td>
<td>Statement on contributions to co-authored publications</td>
<td>14</td>
</tr>
<tr>
<td>11</td>
<td>Citation and impact analysis of research output</td>
<td>17</td>
</tr>
<tr>
<td>12</td>
<td>Invitations to review</td>
<td>18</td>
</tr>
<tr>
<td>13</td>
<td>Research grants</td>
<td>19</td>
</tr>
<tr>
<td>14</td>
<td>Research awards/prizes</td>
<td>21</td>
</tr>
<tr>
<td>15</td>
<td>Future plans (Research)</td>
<td>22</td>
</tr>
<tr>
<td>17</td>
<td>Errors in P&amp;T dossiers that should be avoided</td>
<td>28</td>
</tr>
</tbody>
</table>
What is SciVal?

• Tool for evaluating and visualizing research performance at different scales, from individual to country

• 4 modules:
  ➢ Overview, Benchmarking, Collaboration and Trends

• Data sources:
  ➢ Citation database: Scopus
  ➢ Usage data: Scopus and Science Direct
  ➢ Media mentions: LexisNexis Metabase
  ➢ Others: 12 funding agencies, 5 patent offices
Why use SciVal?

• Ideal for benchmarking and comparisons
• Greater variety of metrics
  • FWCI
  • Publications in Top Journals Percentiles
  • Publications in Top Citations Percentiles
  • And many more...
• Analysis is easy using specialized tabs
• Output is quite fast
Scopus VS SciVal

**Scopus**
- Updated **daily**
- Backfiling project, from 1970 onwards
- Limited metrics
- Generate **citation counts** up until **certain years**

**SciVal**
- Updated every **2 weeks to 1 month**
- Coverage only from **1996 onwards**
- More metrics
- **Cannot exclude** citations received after certain year
Accessing SciVal

1. At library portal, search for SciVal under the Databases tab.

2. At the Login page, click on Register Now to sign up for a personal SciVal account.
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.
Depending on the SciVal module, some entities cannot be selected.
Benchmarking module
To generate research impact metrics for comparison
Benchmarking module

• Used to evaluate research performance in comparison with others
  • Annual Review, Promotion and Tenure
  • Evaluating new hires
  • Departmental benchmarking
• Broad range of metrics to choose from
• Available to use for all entity types
Getting ready for Benchmarking on SciVal

• Identify researchers in similar research areas from peer/aspirant institutions
  • Department benchmarking report
  • Identified by HOD

• Gather the researcher’s CV and list of publications
  • If possible, note down their promotion year

• Have an idea what metrics you would like to use
  • Use a range of metrics for comparison
Based on the Sample P&T dossier

11. CITATION AND IMPACT ANALYSIS OF RESEARCH OUTPUT

The following table shows a comparison of my research output and citations with recently promoted Associate Professors of Sociology benchmark/peer departments identified by the Department during its Research Benchmarking exercise 2014.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Year promoted to Associate Prof (Year of PhD)</th>
<th>No. of journal papers at the time of P&amp;T application</th>
<th>Citations (excluding self-citations, as at DDMMYY)</th>
<th>H-index (excluding self-citations, as at DDMMYY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myself (Wong)</td>
<td>NUS</td>
<td>2005</td>
<td>20</td>
<td>120</td>
<td>180</td>
</tr>
<tr>
<td>ABC</td>
<td>XYZ</td>
<td>2012</td>
<td>22</td>
<td>135</td>
<td>195</td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: PVO: Sample P & T Dossier
## Benchmarking Table to consider for P&T

<table>
<thead>
<tr>
<th>Researcher Name</th>
<th>Promotion Year (if available)</th>
<th>Title</th>
<th>University</th>
<th>Scholarly Output</th>
<th>Total Citation Counts</th>
<th>Paper with highest FWCI</th>
<th>H-index</th>
<th>Average FWCI</th>
<th>% pubs in top 10% Journal Percentiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (You)</td>
<td>2018</td>
<td>Assistant Professor</td>
<td>NUS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>2015</td>
<td>Associate Professor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>2012</td>
<td>Associate Professor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Field Weighted Citation Impact

- A measure of how well cited the publication is compared to the average publication of the same type in same subject field, and in the same period
- Looks at citations received in the publication year plus 3 following years

<table>
<thead>
<tr>
<th>FWCI</th>
<th>Means</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td># of citations received for a publication = average # of citations received for similar publications</td>
<td></td>
</tr>
<tr>
<td>&gt; 1</td>
<td># of citations received for a publication &gt; average # of citations received for similar publications</td>
<td>FWCI of 2.10 means 110% more cited than the average</td>
</tr>
<tr>
<td>&lt; 1</td>
<td># of citations received for a publication &lt; average # of citations received for similar publications</td>
<td>FWCI of 0.85 means 15% less cited than average</td>
</tr>
</tbody>
</table>
H-index

- A measure of both the **productivity** and **citation impact** of a researcher

- “A researcher with an index of *h* has published *h* papers that have at least *h* citations each”
Publications in top journal percentiles

• The number or percentage of a researcher’s publications are published in top journals

• Uses journal metrics like
  • Source Normalized Impact per Paper (SNIP)
  • SCImago Journal Rank (SJR)
  • CiteScore

CiteScore, SNIP & SJR are freely available from Scopus Journal Metrics
Activity 1

Assume that you are Tim Allott from University of Manchester. You are going up for promotion and have identified 2 other researchers (both conferred associate professorship in 2013) to benchmark against:

1. Janet F Barlow, University of Reading
2. Natascha Kljun, Swansea University

Use SciVal’s Benchmarking module to retrieve following metrics:

- Scholarly Output
- Citation Count (exclude self-citations)
- H-index (exclude self-citations)
- Field Weighted Citation Impact (exclude self-citations)
- FWCI for publication with the highest FWCI
- Publications in Top Journal Percentiles (top 10% in SJR)
Defining a new researcher

1. Click on Define a new Researcher
   a) You can type in the Last and First name and specify Affiliation
Defining a new researcher

2. You may click on *Validate Publications (optional)* if you would like to double check all the publications. If not, click on *Directly go to Save Researcher*
Defining a new researcher

3. Add a *tag* to the researcher to help organize your entries later. When done, click on *Save and finish*.

If you would like to add another researcher, click on *Save and define another Researcher*.
Activity 1

Assume that you are Tim Allott from University of Manchester. You are going up for promotion and have identified 2 other researchers (both conferred associate professorship in 2013) to benchmark against:

1. Janet F Barlow, University of Reading
2. Natascha Kljun, Swansea University

Use SciVal’s Benchmarking module to retrieve following metrics:
- Scholarly Output
- Citation Count (exclude self-citations)
- H-index (exclude self-citations)
- Field Weighted Citation Impact (exclude self-citations)
- FWCI for publication with the highest FWCI
- Publications in Top Journal Percentiles (top 10% in SJR)

Populate the table in the next slide with the various metrics
## Activity 1 - Benchmarking Table

<table>
<thead>
<tr>
<th>Researcher Name</th>
<th>Promotion Year (if available)</th>
<th>Title</th>
<th>University</th>
<th>Scholarly Output</th>
<th>Total Citation Counts</th>
<th>FWCI of paper with highest FWCI</th>
<th>H-index</th>
<th>Average FWCI</th>
<th>% in top 10% Journal Percentiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allott, Tim</td>
<td>2018</td>
<td>Assistant Professor</td>
<td>University of Manchester</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barlow, Janet F</td>
<td>2013</td>
<td>Associate Professor</td>
<td>University of Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kljun, Natascha</td>
<td>2013</td>
<td>Associate Professor</td>
<td>Swansea University</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Using Scopus to supplement SciVal

You may need to use Scopus to provide a more updated ‘Scholarly Output’, ‘Total Citation Counts’ and ‘H-index’ figures if you have:

- Published before 1996
- To compare with other researchers up to promotion year
# Departmental Benchmarking

<table>
<thead>
<tr>
<th>Departments</th>
<th>Scholarly Output</th>
<th>Citation Count</th>
<th>Field-Weighted Citation Impact (FWCI)</th>
<th>Publications in Top 10 Journal Percentiles (%) SNIP</th>
<th>Publications in Top 10 Journal Percentiles (%) SJR</th>
<th>Cited Publications (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Hopkins - School of Public Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harvard - School of Public Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Michigan – School of Public Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2 ways to create Department in SciVal

Defining a group of researchers

- Search using Scopus ID
- Pros - comprehensive
- Cons - time consuming as:
  i) require finding the correct author or author ID
  ii) especially for large departments

Creating a publication set

- Search using department name
- Pros - convenient and fast
- Cons - not comprehensive as:
  i) some publication does not include department name in the address field
  ii) many name variants

Note: Using Scopus IDs to search for a researcher will include all their publications (i.e. publications from their previous affiliations.)
Defining a group of researchers using Scopus IDs
Creating a publication set using affiliation search
Defining a group of researchers

1. Click on *Import Researchers* by pasting Scopus author IDs then click *Next Step*
Defining a group of researchers

2. From here, click *Organize Groups*
Defining a group of researchers

3. Drag the researchers name and drop them to Group Structures, name the Group and then click Save and finish
Activity 2

You want to benchmark these 3 departments based on publications from 2014-2017:

<table>
<thead>
<tr>
<th>Departments</th>
<th>Scholarly Output</th>
<th>Citation Count</th>
<th>Field-Weighted Citation Impact (FWCI)</th>
<th>Publications in Top 10 Journal Percentiles (%) SNIP</th>
<th>Publications in Top 10 Journal Percentiles (%) SJR</th>
<th>Cited Publications (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Hopkins - School of Public Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harvard - School of Public Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Michigan – School of Public Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hint:**
- Under Researchers > Import researchers
- Paste Scopus IDs
- Organize Group
Institutional Benchmarking

1. By default, NUS is chosen for you already

2. To add other institutions, click on *Add Institutions and Groups*
Adding an Institution

3. Type in the name of the Institution then hit Enter

4. Clicking on *Define a new Group of Institutions* allows you to select from existing institutional groups within SciVal or create your own
Insight for collaboration opportunities...

- What are the “emerging” or “hot” areas your peers or aspirants working on?
- Are you working on the same area?
- Who else are working in that areas?
- Anyone from your own institution?
## Topics: Overview & Trends

### Browse Topics

Researchers of Harvard SPH have contributed to 168 topics between 2014 to 2017.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Scholarly Output</th>
<th>Field-Weighted Citation Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate Matter; Air Pollution; particulate air pollution; PM2.5; PM10; particulate matter</td>
<td>37</td>
<td>3.07</td>
</tr>
<tr>
<td>Fluorocarbons; Alkanesulfonic Acids; acids PFAAs Fluorocarbon; Acid</td>
<td>21</td>
<td>2.31</td>
</tr>
</tbody>
</table>
More information on Topics

Emerging

≈ momentum
≠ importance

Based on citation network

Similar

Over 90,000 topics
How are Topics created?

• Using Scopus publications and their citation network from 1996 onwards

• These publications are clustered into topics based on citation links

More information on Algorithm Clustering
Prominence Score

• i.e. emerging-ness

• Calculated based on 3 metrics:
  ➢ Scopus *Citation Count* in year n to papers published in year n and n-1
  ➢ Scopus *Views Count* in year n to papers published in year n and n-1
  ➢ Ave. *CiteScore* in year n
Trends Module

Particulate Matter; Air Pollution; particulate air

Overall research performance

- Scholarly Output: 1,557
- Field-Weighted Citation Impact: 1.82
- International Collaboration: 430

Views Count: 31,709
Citation Count: 17,920
Topic Prominence Percentile: 99,399
Other institutions working in this area

<table>
<thead>
<tr>
<th>Institution</th>
<th>Scholarly Output</th>
<th>Views Count</th>
<th>Field-Weighted</th>
<th>Citation Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Harvard University</td>
<td>146</td>
<td>2,820</td>
<td>3.24</td>
<td>2,668</td>
</tr>
<tr>
<td>2. Peking University</td>
<td>78</td>
<td>1,531</td>
<td>1.78</td>
<td>1,414</td>
</tr>
<tr>
<td>3. U.S. Environmental Protection Agency</td>
<td>77</td>
<td>1,444</td>
<td>1.72</td>
<td>1,001</td>
</tr>
<tr>
<td>4. Fudan University</td>
<td>69</td>
<td>1,111</td>
<td>2.26</td>
<td>1,013</td>
</tr>
</tbody>
</table>
Other researchers working in this area

<table>
<thead>
<tr>
<th>Author</th>
<th>Affiliation</th>
<th>Scholarly Output</th>
<th>Views Count</th>
<th>Field-Weighted</th>
<th>Citation Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kan, Haidong</td>
<td>Fudan University</td>
<td>44</td>
<td>971</td>
<td>2.79</td>
<td>924</td>
</tr>
<tr>
<td>Chen, Renjie</td>
<td>Unknown institution</td>
<td>32</td>
<td>649</td>
<td>2.95</td>
<td>604</td>
</tr>
<tr>
<td>Guo, Xinbiao</td>
<td>Peking University</td>
<td>24</td>
<td>478</td>
<td>1.31</td>
<td>355</td>
</tr>
<tr>
<td>Zhao, Zhuohui</td>
<td>Fudan University</td>
<td>20</td>
<td>297</td>
<td>3.11</td>
<td>258</td>
</tr>
</tbody>
</table>
Activity 3

You want to get insight on Univ. Michigan - School of Public Health

1. List 3 emerging topics that they are working at.
2. Find out which emerging topic they are the strongest at, based on no of publications from 2012 – 2017?
3. Which other institutions are also doing research in that area?

Hint:
• Overview > Topics
• Sort by Prominence Percentile
• Analyze topic worldwide
3 Modules

**Benchmarking**
- Comparison
- Available for all entities
- Time frame: 1996 - present

**Overview**
- Topics is only available for Institutions & Researchers
- Max. 5 years

**Trends**
- Only for Publication Sets & Topics
- Max. 5 years
Research Impact: Home

Welcome

Why measure research?
Research impact is often measured using popular quantitative tools such as citation counts, the h-index and journal impact factors.

• Measuring the value or impact of research is increasingly important particularly if the research has been funded with public money.
• Research institutions are able to identify the research strengths as well as the areas for improvement through quantitative analysis of research.
• When competing for funding and career opportunities, researchers may need to produce evidence of their research impact.

Is my research making an impact?

Key Terms
Bibliometrics is the use of quantitative tools to study publications and other written materials.
Citation metrics focus on the statistical patterns and measurements of citations.
Citation analysis can be used as a quantitative measure of academic output and research impact.

Workshop
FAQ

http://libguides.nus.edu.sg/researchimpact
<table>
<thead>
<tr>
<th>Section</th>
<th>Team Member(s)</th>
<th>Email(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASS / SDE</td>
<td>Richard Ho</td>
<td><a href="mailto:clbhcyr@nus.edu.sg">clbhcyr@nus.edu.sg</a></td>
</tr>
<tr>
<td></td>
<td>Hayati Abdul</td>
<td><a href="mailto:hayati@nus.edu.sg">hayati@nus.edu.sg</a></td>
</tr>
<tr>
<td></td>
<td>Gerrie Kow</td>
<td><a href="mailto:gerrie@nus.edu.sg">gerrie@nus.edu.sg</a></td>
</tr>
<tr>
<td>School of Business</td>
<td>Luo Linyu</td>
<td><a href="mailto:linyu@nus.edu.sg">linyu@nus.edu.sg</a></td>
</tr>
<tr>
<td>FoE / SoC</td>
<td>Irine Tanudjaja</td>
<td><a href="mailto:irine.tanudjaja@nus.edu.sg">irine.tanudjaja@nus.edu.sg</a></td>
</tr>
<tr>
<td>YLLSOM</td>
<td>Amy Chou</td>
<td><a href="mailto:amy.chou@nus.edu.sg">amy.chou@nus.edu.sg</a></td>
</tr>
<tr>
<td>Law</td>
<td>Bissy Ithack</td>
<td><a href="mailto:bissyithack@nus.edu.sg">bissyithack@nus.edu.sg</a></td>
</tr>
<tr>
<td>Science</td>
<td>Magdeline Ng</td>
<td><a href="mailto:magdeline.ng@nus.edu.sg">magdeline.ng@nus.edu.sg</a></td>
</tr>
</tbody>
</table>
Feedback & Questions?