Getting Started with Grant Proposal Writing

By

Dr Julian Tang (Head, Research Communications & Editorial Office of Deputy President (Research & Technology))

Hayati Abdul, Wong Suei Nee & Richard Ho (NUS Libraries)
1. Learn the tips and tricks to writing a better grant proposal

2. Learn how to use library databases for your grant proposal’s literature search

3. Learn how to use library databases to generate relevant research metrics to complement your grant proposal
Crafting a Research Proposal

Presented by

Dr Julian Tang
Head, Research Communications & Editorial
Office of Deputy President (Research & Technology)
Scholarly Articles vs. Grant Proposals

Underlying motivation for readers who read published manuscripts is because they want to, but for those who read grant proposals is because they have to.

Scholarly pursuit vs. sponsor goals
• Need to ensure the objectives are aligned with the target agency’s goals

Theme-centred vs. project centred
• Narrative should focus on a well-defined, well-planned, goal-oriented project

Expository vs. persuasive rhetoric
• Not to inform the reader but rather to persuade
Five Core Review Criteria

- Significance
- Environment
- Investigators
- Approach
- Innovation
Significance

Reviewer: Do I want it?
• Idea needs to engage, grip, excite and show promises
• Not only communicate idea, but to make reviewer ‘like’ the idea

Significance of problem is not significance of proposed project
• Think beyond the results; merit of the solution
• Extend its reach across multiple dimensions

Understand the dual nature of significance
• So what? Then what?
• Consider indirect effects
Approach

**Not a method**
- Direction from which to tackle an issue
- Has its own characteristics

**Requires creativity, observation and experience**
- Innovative approaches rate highly compared to tried-and-tested ones
- Methods need not be new, but combination of methods under the approach should be new
Metrics and Measures of Esteem

The Marketing Pitch

Supports argument that you are the right person for it
• Avoid empty claims
• Essential for progress reports

Output of an individual researcher
• Author-level metrics and awards

Quality of previous publications
• Journal impact factor
Scientific Illustration

The Marketing Pitch

Provides the overall picture at one glance
• Immediate impact
• Entice the reader to explore further

Makes science accessible
• Show complex processes and relationships

Allows visual records
• Lasting impression
• Creates familiarity
Scientific Illustration
Examples
PROJECT 1

Title

Brief project description: Objectives, expertise, entities, infrastructure, methods, solutions and applications

Develop new Solvers/algorithms

PROJECT 2

Title

Brief project description: Objectives, expertise, entities, infrastructure, methods, solutions and applications

Platform for rapid deployment of models

PROJECT 3

Title

Applications Domains

Transportation/Logistics | Services Systems | Joint Machine Learning & Decision Making
Title

Overall goal
Key Objectives and Description of Proposed Programme

Brief description of Imaging

Brief description of Sensors

Brief description of AI and Data Analytics
Proposal Summary
The Marketing Pitch

Briefly presents all elements
• The five core criteria

Reveals for the first time the main argument
• Entice the reader to explore in detail

Stand-alone
• Self-contained and understandable as is
Most Common Criticisms

- Diffuse, superficial or unfocused research plan
- Lack of knowledge of published relevant work
- Uncertainty concerning the future directions
- Questionable reasoning in experimental approach

- Absence of acceptable scientific rationale
- Unrealistically large amount of work
- Lack of experimental detail
- Overstating the impact
Editorial Matters

- Watch out for grammatical structures
  - Do not risk lessening reader interest and attention
  - Passive voice, long sentences, negativity
    - Online tools

- Increasingly common to have one main illustration
  - Depicts the core criteria

- Talk to a grant manager early
  - Familiarise yourself with the proposal format and submission process

- Seek help from experience grant writers/editors
  - Services offered by ODPRT for major funding
    - Crafting the narrative, editing, presentation slides, scientific illustration, feature articles
Thank you

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Literature Review in Grant Proposal

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Content Outline

Literature Review and Grant Proposal

• Why literature review? What makes a good literature review?

Scopus and WoS

• Comparison of features

• Conduct a scoping search - to show that you have read extensively on a topic and understand your project’s scholarly context and significance

• Analyse search results to find out recent research/keep current with the topic
Why do I need a literature review?

• Provides foundation for knowledge on a given topic of research
• Be aware of other work that has been done in the area of research
• Contextualise your work within the confines of existing literature
• Distinguish your own work from others - originality is important!

What makes a good literature review?

• Be comprehensive but selective
• Be respectful
  • Correct errors; build and rebuild on past work

What makes a good literature review?

Source: Byrne, D. (2017). What makes a successful literature review?. Project Planner. doi 10.4135/9781526408518
Positioning as a grant writer

Craft an effective literature review that:

• Locates the problem and frames a case for advancing that literature

• Proposes another approach that “… leads the reader to the inescapable conclusion that the project being proposed asks the next necessary question in the field”.

Sources:
# Features: WoS vs Scopus

<table>
<thead>
<tr>
<th>Features</th>
<th>Web of Science</th>
<th>Scopus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials Indexed</strong></td>
<td>• Active peer-reviewed journals: 20,219&lt;br&gt;• Inactive journals (mostly predecessors of active titles): 8,341&lt;br&gt;• Conference papers: 10+ million&lt;br&gt;• Books: 90,000+</td>
<td>• Active peer-reviewed journals: 23,793&lt;br&gt;• Inactive journals (mostly predecessors of active titles): 13,742&lt;br&gt;• Conference papers: 8+ million&lt;br&gt;• Books: 150,000+&lt;br&gt;• Trade publications: 280&lt;br&gt;• Book series: 560+&lt;br&gt;• Patents: 39+ million</td>
</tr>
<tr>
<td><strong>Content Focus</strong></td>
<td>Multidisciplinary: Life sciences, health sciences, physical sciences, and social sciences (includes arts &amp; humanities)</td>
<td></td>
</tr>
<tr>
<td><strong>Time Period Covered</strong></td>
<td>1900-present</td>
<td>1970-present</td>
</tr>
<tr>
<td><strong>Non-English</strong></td>
<td>Yes, if it has an English abstract</td>
<td>Yes, if it has an English abstract; 22% of titles are non-English</td>
</tr>
<tr>
<td><strong>No of titles published outside North America</strong></td>
<td>14,420</td>
<td>16,000</td>
</tr>
<tr>
<td><strong>Author indexing</strong></td>
<td>Author-created as part of ResearcherID edited by authors</td>
<td>Author-generated by Scopus- edits done by Scopus staff</td>
</tr>
</tbody>
</table>

**Sources:**
- Iowa State University, LibGuides: Scopus (http://instr.iastate.libguides.com/c.php?g=120420&p=785310)
Research Topic: Vaccines for Covid-19?

Identify the keywords in the topic

Vaccines, covid-19

Find the synonyms, alternate terms of keywords

Covid-19:  
- Wuhan virus  
- 2019 novel coronavirus

Look for different variations of keywords

Covid-19:  
- 2019-nCov  
- 2019-novel CoV  
- 2019 novel coronavirus

Vaccines: vaccin*

Use phrase searching

“2019 novel coronavirus”

Use Boolean operators

“Wuhan virus” OR Covid-19

AND OR
MESH/Controlled terms for Covid-19?

COVID-19 [Supplementary Concept]
A viral disorder characterized by high FEVER; COUGH; DYSPNEA; renal dysfunction and other symptoms of a VIRAL PNEUMONIA. A coronavirus SARS-CoV-2 in the genus Betacoronavirus is the suspected agent.
Date introduced: February 13, 2020

PubMed search builder options
- Restrict to MeSH Major Topic.
- Do not include MeSH terms found below this term in the MeSH hierarchy.

MeSH Unique ID: C000657245
Heading Mapped to:
- Pneumonia, Viral
- Coronavirus Infections

Entry Terms:
- 2019 novel coronavirus infection
- 2019-nCov infection
- COVID-19 pandemic
- coronavirus disease-19
- 2019-nCoV disease
- COVID-19
- 2019 novel coronavirus disease
- coronavirus disease 2019
Research Topic: Vaccines for Covid-19?

<table>
<thead>
<tr>
<th>Keyword / Synonym</th>
<th>Concept 1</th>
<th>Concept 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covid-19</td>
<td></td>
<td>vaccines</td>
</tr>
</tbody>
</table>

**Alternative terms / Synonyms**

<table>
<thead>
<tr>
<th>Keyword / Synonym</th>
<th>Concept 1</th>
<th>Concept 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wuhan virus</td>
<td></td>
<td>vaccination</td>
</tr>
<tr>
<td>2019-nCov</td>
<td></td>
<td>immunization</td>
</tr>
<tr>
<td>2019-novel CoV</td>
<td></td>
<td>inoculation</td>
</tr>
<tr>
<td>2019 novel coronavirus</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


AND

Vaccin* OR immuni* OR inocul*
Research Topic: Vaccines for Covid-19?

Construct the search statement

Scopus at a glance

- Over 25,100 titles: (see section 4.1)
  - Over 23,452 peer-reviewed journals (including 5,500 full open access journals)
  - 294 trade publications
  - Over 852 book series
  - Over 9.8 million conference papers from over 120,000 worldwide events

“Articles-in-Press” from over 5,500 journals: (see section 5)
  - More than 210,000 books with 20,000 added

Over 77.8 million records: (see section 3.1)
  - Over 71.2 million records post-1969 with references
  - Over 6.6 million records pre-1970, with the oldest record dating back to 1788

Patents:
  - More than 44 million patent records from five patent offices (see section 2.3)

For additional information and updates, please refer to: [http://www.elsevier.com/solutions/scopus/content](http://www.elsevier.com/solutions/scopus/content) and follow the Scopus blog: [http://blog.scopus.com/](http://blog.scopus.com/).
How to access Scopus & WoS?

NUS staff & Students - via NUS Libraries Portal:

1. Go to: [http://www.lib.nus.edu.sg](http://www.lib.nus.edu.sg)
2. Click on “Databases” tab and then click on “Scopus”/“Web of Science” under Major & Popular Databases
SCOPUS – Search Features

On the Advanced search page, you can conduct an advanced search using a large number of field names and other advanced search parameters.

On the Document Search page, you can conduct both simple and more advanced searches using common search parameters.
Build search strategy

In the ‘Enter query string’ search box, enter the **keywords/synonyms** for both concepts as shown below

Click **Search** (magnifying glass)
<table>
<thead>
<tr>
<th>Document title</th>
<th>Authors</th>
<th>Year</th>
<th>Source title</th>
<th>Viewed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Another decade, another coronavirus</td>
<td>Perlman, S.</td>
<td>2020</td>
<td>New England Journal of Medicine</td>
<td>14</td>
</tr>
</tbody>
</table>
Genomic characterization of the 2019 novel human-pathogenic coronavirus isolated from a patient with atypical pneumonia after visiting Wuhan

Chan, J.-F., W.-Y., Keck, K.-H., Zhu, Z., Chu, H., Tor, K.-K., Yuan, S., and Yuen, K.-Y.

State Key Laboratory of Emerging Infectious Diseases, The University of Hong Kong, Pokfulam, Hong Kong 1
Department of Clinical Microbiology and Infectious Control, The University of Hong Kong-San Tin Hospital, Shatin, New Territories, Hong Kong, China
2Department of Microbiology, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Pokfulam, Hong Kong, China

Abstract

A mysterious outbreak of atypical pneumonia in late 2019 was traced to a seafood wholesale market in Wuhan, China. Within a few weeks, a novel coronavirus tentatively named as 2019 novel coronavirus (2019-nCoV) was announced by the World Health Organization. We performed bioinformatics analysis on a virus genome from a patient with 2019-nCoV infection and compared it with other related coronavirus genomes. Overall, the genome of 2019-nCoV has 99.6% nucleotide identity with bat SARS-like-CoVZC25 and 98.6% with that of human SARS-CoV. The phylogenetic trees of their RdRPs, Spike, Envelope, Membrane and Nucleocapsid protein also clustered closely with those of the bat, civet and human SARS coronaviruses. However, the external subdomain of Spike’s receptor binding domain of 2019-nCoV shares only 49% amino acid identity with other SARS-related coronaviruses. Remarkably, its Orf3b encodes a completely novel short protein. Furthermore, its new Orf7b translation product is associated with an abnormal density diffusion and a hypertrophic mitosis in sarcoma bearing mice from the infected strain. SARS and even MERS-CoV, both of the animal source of infection, do not harbor the corresponding new feature in their complete genome. We conclude that the novel 2019-nCoV is a novel, distinct virus independent of the animal source of infection and should be considered as a new species of coronavirus.
Scopus: Analyze Search Results
Analyse Documents By SOURCE
To get an idea of which journals are publishing the most in a particular field of study based on search query
Analyse Documents By AUTHOR
To identify active researchers, potential collaborators, reviewers, in a particular field of study based on search query.
WEB OF SCIENCE AT A GLANCE

http://clarivate.libguides.com/woscc/basics

Journals
• Science Citation Index Expanded (SCIE): clinical, natural and applied sciences
• Social Sciences Citation Index (SSCI): social sciences
• Arts & Humanities Citation Index (AHCI): arts and humanities
• Emerging Sources Citation Index (ESCI): all disciplines

Books
• Book Citation Index (BKCI): all disciplines

Conference proceedings
• Conference Proceedings Citation Index (CPCI): all disciplines

ESCI journals that gain impact move to SCIE, SSCI or AHCI. SCIE, SSCI and AHCI journals that decrease in impact move to ESCI. Any journal that decreases in quality will be removed from the Web of Science Core Collection.

On the Basic Search page, you may search for records from WoS indexes. All successful searches are added to the Search History table.

Topic search is to search the following fields within a record:
- Title
- Abstract
- Author Keywords
- Keywords Plus®
WEB OF SCIENCE – TOPIC SEARCH

On the Advanced search page, you can conduct an advanced search using a large number of field names and other advanced search parameters.

- **coronavirus**
- Vaccin* OR immuni* OR inocul*
From the results page, the following options are available: Export, sort by and Create Citation Report and Analyze Search Results options.
A novel coronavirus associated with severe acute respiratory syndrome

Drs. Kozak, TC (Kozak, TG); Enshman, D; Fedman, D; Goldsmith, CS; Coldsmith, CS; Zaid, SR; Zaid, SR; Pest, T; Pest, T; Enshman, S; Enshman, S; Tong, SX; Urban, C; Urban, C; Correa, JA (Correa, JA); Lim, W; Lim, W... More

Group Author(s): SARS Working Grp

View Web of Science ResearcherID and ORCID

NEW ENGLAND JOURNAL OF MEDICINE
Volume 240 Issue 20 Pages: 1523-1526
DOI: 10.1056/NEJMoa030781
Published: MAY 15 2003
Document Type: Article

Abstract

BACKGROUND

A worldwide outbreak of severe acute respiratory syndrome (SARS) has been associated with exposures originating from a single ill health care worker from Guangdong Province, China. We conducted studies to identify the etiologic agent of this outbreak.

METHODS

We received clinical specimens from patients in seven countries and tested them, using virus-isolation techniques, electron-microscopical and histologic studies, and molecular and serologic assays, in an attempt to identify a wide range of potential pathogens.

RESULTS

None of the previously described respiratory pathogens were consistently identified. However, a novel coronavirus was isolated from patients who met the case definition of SARS. Cytopathological features were noted in Vero E6 cells inoculated with a throat-swab specimen. Electron-microscopical examination revealed ultrastructural features characteristic of coronaviruses. Immunohistochecmic and immunofluorescence staining revealed reactivity with group 1 coronavirus-polyclonal antibodies. Consensus coronavirus primers designed to amplify a fragment of the polyomavirus gene by reverse transcription-polymerase chain reaction (RT-PCR) were used to obtain a sequence that clearly identified the isolate as a unique coronavirus, only distantly related to previously sequenced coronaviruses. With specific diagnostic RT-PCR primers we identified several identical nucleotide sequences in 12 patients from several locations, a finding consistent with a point-source outbreak. Indirect immunofluorescence antibody tests and enzyme-linked immunosorbent assays made with the new isolate have been used to demonstrate a virus-specific serologic response. This virus may never have before circulated in the U.S. population.

CONCLUSIONS

A novel coronavirus is associated with this outbreak, and the evidence indicates that this virus has an etiologic role in SARS. Because of the death of Dr. Carlo Urbani, we propose that our first isolate be named the Urbani strain of SARS-associated coronavirus.

Keywords

Keywords Plus: PORCINE EPIDEMIC DIARRHEA VIRUS; INFECTION; PROPAGATION; DISEASE; FEVER

Online Tutorials for Web of Science
EVALUATION OF SEARCH RESULTS: FINDING POTENTIAL COLLABORATORS

Find the most prevalent authors, organisations (institutions) or countries in a particular field of study based on search query
Obtaining metrics for your grant proposal

Richard Ho (clbhcyr@nus.edu.sg)
Research Impact Measurement Team
NUS Libraries
Some questions you may have...

• What are some research impact metrics that are useful for grant proposal?
• What do these metrics measure? How can I use them?
• Why are these metrics useful?
• Where can I find these metrics?
After this section, you will be able to...

• Identify the **right metrics** to use in a grant proposal that will demonstrate your expertise and research impact

• Learn how to use **Scopus** to find the following:
  • Scopus author profile
  • Author H-index
  • Article Field-Weighted Citation Impact

• Learn how to use **Journal Citation Report** to find the following:
  • Journal Impact Factor
  • Journal Impact Factor rank information
Different Levels of Citation Metrics

Journal Metrics
- Journal Impact Factor (JIF)
- CiteScore
- ScImago Journal & Country Rank (SJR)
- Source Normalized Impact Per Paper (SNIP)

Article Metrics
- Citation counts
- Field Weighted Citation Impact (FWCI)

Author Metrics
- H-index
- Total citation counts
- Field Weighted Citation Impact (FWCI)

More information
Different Levels of Citation Metrics

- **Journal Metrics**
  - Journal Impact Factor (JIF)
  - CiteScore
  - SCImago Journal & Country Rank (SJR)
  - Source Normalized Impact Per Paper (SNIP)

- **Article Metrics**
  - Citation counts
  - Field Weighted Citation Impact (FWCI)

- **Author Metrics**
  - H-index
  - Total citation counts
  - Field Weighted Citation Impact (FWCI)

More information
Why use Scopus?

• One of the largest abstract and citation databases that provides a comprehensive overview of the world’s academic output
• Regarded as an authoritative source of research metrics
• Widely adopted across the world
• Provides Field-Weighted Citation Impact at article level
Defining H-index

- Author-level metric that measures both the **productivity** and **citation impact** of the publications of a researcher.

- “A researcher with a h-index of 4 has published 4 papers each of which has been cited at least 4 times”

- Provide h-index as part of your CV as it can help to indicate of your productivity and citation impact.
How to calculate Prof. X’s h-index?

<table>
<thead>
<tr>
<th>No.</th>
<th>Prof. X’s Papers</th>
<th>Times Cited</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paper A</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Paper B</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Paper C</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Paper D</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Paper E</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Paper F</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Paper G</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Paper H</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Paper I</td>
<td>4</td>
</tr>
</tbody>
</table>

**h-index = 6**
Why the interest in FWCI?

National Research Foundation (NRF) adopted FWCI for tracking relative quality of research in Singapore

---

Field-weighted citation impact (FWCI) tracks how the number of citations received by Singapore’s publications compares with the global average (represented by a FWCI of 1.00). For example, Singapore’s FWCI of 1.82 in 2012 means that Singapore’s publications received 82% more citations than the world average. Data source from Elsevier SciVal.
Defining Field Weighted Citation Impact

• A measure of how well cited the publication is compared to the average publication of the same publication type in same subject field, and in the same period (publication year + 3 following years)

• In your list of top publications, provide the FWCI figures as well to show that your publication/research is more impactful that other similar publications/research

<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 2.1 times 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>
Searching on Scopus (DEMO)
Performing an Author Search

Author search

- Author last name: Berg
- Author first name: Carla
- Affiliation: University of Toronto

Search options:
- Show exact matches only

Search ORCID:
- ORCID: e.g. 0001-2222-3333-444x
Click on Citation Overview
Author h-index, total citation counts, exclude self-citations...
Other sources of H-index
Perceived harm, addictiveness, and social acceptability of tobacco products and marijuana among young adults: Marijuana, hookah, and electronic cigarettes win

Abstract

Background: There has been an increase in non-daily smoking, alternative tobacco product and marijuana use among young adults in recent years. Objectives: This study examined perceptions of health risks, addictiveness, and social acceptability of cigarettes, cigar products, smokeless tobacco, hookah, electronic cigarettes, and marijuana among young adults and correlates of such perceptions. Methods: In Spring 2013, 10,000 students at two universities in the Southeastern United States were recruited to complete an online survey (7,002 respondents), assessing personal.
Journal Impact Factor (JIF)

• It is used as a proxy to determine how important a given journal is in its field
• The Journal Impact Factor is the average number of times articles published in the journal has been cited over a two year period
• In your list of top publications, other than the FWCI, also provide available JIF and JIF rank information to show that you are publishing in top influential journals.
How to use Journal Impact Factor properly?

- Always use a journal’s JIF with subject rank percentile
- This provides context as to what the JIF means

<table>
<thead>
<tr>
<th>JOURNAL OF ECONOMIC HISTORY</th>
<th>DEVELOPMENT GROWTH &amp; DIFFERENTIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>JIF 2018 – 1.638</td>
<td>JIF 2018 – 1.638</td>
</tr>
<tr>
<td>History of Social Sciences</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>Rank 1/34</td>
<td>Rank 36/43</td>
</tr>
<tr>
<td>Q1 98.5%</td>
<td>Q4 17.22 %</td>
</tr>
<tr>
<td>Economics</td>
<td>Cell Biology</td>
</tr>
<tr>
<td>Rank 130/363</td>
<td>Rank 173/193</td>
</tr>
<tr>
<td>Q2 64.3%</td>
<td>Q4 10.6%</td>
</tr>
</tbody>
</table>
Database: InCites Journal Citation Report (JCR)

• Database associated with Web of Science
• Covers more than 2.3 million articles, 11,896 journals across 236 disciplines from the Web of Science CORE collection
• Provides journal metrics like Journal Impact Factor (JIF), JIF percentiles, average JIF percentile etc.
3 ways of retrieving Journal Impact Factor:

1. Search for individual journal by title
2. Browse/Search based on specific Web of Science Categories
3. Download the complete JCR
3 ways of retrieving Journal Impact Factor:

1. **Search for individual journal by title**
2. **Browse/Search based on specific Web of Science Categories**
3. **Download the complete JCR**
How do you access JCR?

1. From Databases -> Search for Journal Citation Reports

2. From Web of Science, click on Journal Citation Reports
1. Searching by Journal Name (DEMO)
Individual Journal Profile

Food Microbiology

ISSN: 0740-0020
eISSN: 1095-9998
ACADEMIC PRESS LTD–ELSEVIER SCIENCE LTD
24-25 WATLING ST, LONDON EC1M 7JR, ENGLAND

Languages
English

Categories
- Biotechnology & Applied Microbiology -- SCIE
- Food Science & Technology -- SCIE

Journal Impact Factor Trend 2016

4.089
2018 Journal Impact Factor
# Journal Rank for the various categories

<table>
<thead>
<tr>
<th>JCR Year</th>
<th>BIOTECHNOLOGY &amp; APPLIED MICROBIOLOGY</th>
<th>FOOD SCIENCE &amp; TECHNOLOGY</th>
<th>MICROBIOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rank</td>
<td>Quartile</td>
<td>JIF Percentile</td>
</tr>
<tr>
<td>2013</td>
<td>32/162</td>
<td>Q1</td>
<td>80.555</td>
</tr>
<tr>
<td>2017</td>
<td>26/161</td>
<td>Q1</td>
<td>84.161</td>
</tr>
<tr>
<td>2016</td>
<td>34/160</td>
<td>Q1</td>
<td>79.063</td>
</tr>
<tr>
<td>2015</td>
<td>37/161</td>
<td>Q1</td>
<td>77.329</td>
</tr>
<tr>
<td>2014</td>
<td>41/163</td>
<td>Q2</td>
<td>75.153</td>
</tr>
</tbody>
</table>
2. Search by Category
3. Download complete JCR information (1)

- Under ‘Browse by Journal’
3. Download complete JCR information (2)

- Under ‘Browse by Journal’
In Summary...

You have learned how to:

- Identify the right metrics that you can use to complement your research grant proposal
- How to use these metrics appropriately
- How to find them using the various databases

Look out for future Researcher Unbound workshops on Research Impact Measurement next semester!

1. Using Scopus, Web of Science, Publish or Perish to obtain metrics
2. Using SciVal for benchmarking
3. Predatory publishing
What was covered

1. Learn the tips and tricks to writing a better grant proposal

2. Learn how to use library databases for your grant proposal’s literature search

3. Learn how to use library databases to generate relevant research metrics to complement your grant proposal

Contact Information

Feel free to contact us if you have further questions on:

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2. Literature searching
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