

Web of Science versus Scopus: Journal Coverage Overlap Analysis¹

Texas A&M University Libraries

Summary

In FY2019, the Libraries did not receive an increase to its materials budget, creating a budget deficit in the context of an average annual six percent increase in serials and databases subscription costs. The Web of Science (WoS) and Scopus databases have been examined in order to determine whether the Texas A&M Libraries can choose one resource over the other given the current budget situation. Data points reviewed are cost, usage, and content overlap. Below are some of the findings:

- The subscription cost for the WoS in 2019 was over \$212,000 and nearly \$140,000 for Scopus. Over the past five years, WoS had a 4% subscription cost increase each year, while Scopus had a 5% increase.
- Usage in calendar year 2018 was significantly higher for Web of Science compared to Scopus: 242,331 regular searches for WoS versus 69,134 searches for Scopus. This resulted in an average cost per use of \$0.88 for WoS and \$2.02 for Scopus.
- A review of papers published by Texas A&M authors indexed by the two databases showed comparable numbers: 43,068 articles indexed by WoS over a ten-year period (2007-2016) and 48,285 articles indexed by Scopus (2008-2017).
- 28,560 journal titles are indexed in Web of Science and 37,535 journals are indexed in Scopus (31% more).
- By broad disciplines, there is a 49% content overlap (meaning WoS and Scopus index the same titles) in the Natural Sciences & Engineering, 43% overlap in Biomedical Research, 50% overlap in Social Sciences and 49% overlap in the Arts & Humanities.
- By years of coverage and discipline, there is a 62% coverage overlap in the Natural Sciences & Engineering, 46% in Biomedical Research, 66% in Social Sciences, and 63% in the Arts & Humanities.
- Head-to-head comparison:

Features	Web of Science (Clarivate Analytics)	Scopus (Elsevier)
Materials Indexed:	<ul style="list-style-type: none">• Active peer-reviewed journals: 20,219• Inactive journals (mostly predecessors of the active titles): 8,341• Conference papers: 10+ million• Books: 90,000+	<ul style="list-style-type: none">• Active peer-reviewed journals: 23,793• Inactive journals (mostly predecessors of the active titles): 13,742• Conference papers: 8+ million• Books: 150,000+• Trade publications: 280• Book series: 560+• Patents: 39+ million

¹ Report author: Simona Tabacaru, April, 2019

Content focus:	Life sciences, biomedical sciences, engineering, social sciences, arts & humanities	Life sciences, health sciences, physical sciences, and social sciences (which includes arts & humanities)
Time period covered	1900-present	1970-present
Non-English	Yes, if it has an English abstract	Yes, if it has an English abstract; 22% of titles are non-English languages
Number of titles published outside North America	14,420	16,000
Author indexing	Author-created as part of ResearcherID-edited by authors	Author-generated by Scopus-edits only done by Scopus staff
Strengths	<ul style="list-style-type: none"> • Indexed journals have less coverage gaps • Deeper citation indexing across all content (back to 1900) • More options for citation analysis for institutions • More robust author searching - all authors from all publications are indexed, searchable and unified based on ORCID and ResearcherID profiles • Funding Data: 2008-present 	<ul style="list-style-type: none"> • Broader international, non-English coverage • Stronger biomedical research coverage • Effective keyword/index term facet based on underlying databases with indexing • Powerful interface and more features: <ul style="list-style-type: none"> o Analyze search results: graphs by year, source (journal), author, institution affiliation, discipline, country, document type; exportable to MS Excel o Compare journals: compares up to 10 sources by impact metrics: number of citations, number of articles published in a year, % of articles not cited, & % of articles that are review articles, all graphed by year o View secondary documents, which are documents not indexed in Scopus (retrieved from the references or citations of the documents that are covered by Scopus). • In 2016, NSF chose Scopus as a new data provider for its Science & Engineering Indicators report due to the Scopus' broader global coverage

Weaknesses	<ul style="list-style-type: none"> • No controlled vocabulary • Minimal additional keywords • Retrieval sets are smaller • Inferior visualization of journal metrics and results set bibliometric data • Poorer coverage of interdisciplinary journals than Scopus 	<ul style="list-style-type: none"> • Author clustering is problematic • Institutional clustering is problematic • No “SAME” operator; difficult to link department names to organizations and locations • Random missing articles from core journals, e.g. Physical Review B • Cannot directly see underlying citation database
<p>Sources: Clarivate Analytics and Scopus webpages, A.Ben Wagner. (2015). <i>A Practical Comparison of Scopus and Web of Science Core Collection</i> (https://ubir.buffalo.edu/xmlui/handle/10477/38568); Iowa State University, LibGuides: <i>Scopus</i> (http://instr.iastate.libguides.com/c.php?g=120420&p=785310)</p>		

When to Use Each Database

WoS and Scopus complement each other, as neither resource is all inclusive.

- Use Web of Science:
 - To find the best information on citing activity by faculty peers for subscribed titles²
 - For “high-influence” publications
 - To find better coverage of funding information³
- Use Scopus:
 - To find the best information on authoring activity by local faculty for subscribed journals⁴
 - For broader coverage of journals published outside the U.S.
 - For broader coverage of non-English language publications
 - For interdisciplinary field coverage

Methodology

A list of 28,560 journals indexed by the WoS and their coverage years along with Counter-compliant database (DB1) usage reports were provided by our Clarivate Analytics Regional Territory Manager in August 2018. DB1 reports count total searches, result clicks, and record views by month and database. Similarly, the Scopus journal title list (37,535) was downloaded on the Scopus website along with Counter-compliant platform (PR1) usage reports. PR1 reports count total searches, result clicks and record views by month and platform, providing similar data as DB1 reports. The Scopus title list used in this assessment was last updated in April 2018.

Matching

For a journal overlap analysis, journals from the WoS list were matched to the Scopus list using their ISSN. The remaining journals were matched on both title and publisher and the results were verified to

² Crew, K., Schoenborn M., Stemper, J., & Lilyard, C. (2016). E-Journal metrics for collection management: Exploring disciplinary usage differences in Scopus and Web of Science. *Evidence Based Library and Information Practice* 11(2), 97-119.

³ Hokol, P, Blazun Vosner, H. (2018). “Discrepancies among Scopus, Web of Science, and PubMed coverage of funding information in medical journal articles.” *Journal of the Medical Library Association* 106(1). 81-85. DOI: [dx.doi.org/10.5195/jmla.2018.181](https://doi.org/10.5195/jmla.2018.181)

⁴ Crew, K., Schoenborn M., Stemper, J., & Lilyard, C. _____

correct false positives. Using this method, 21,263 WoS and 21,032 Scopus titles were successfully matched for title overlap analysis. The difference in numbers is due to two or more related titles (titles changes) on one platform matching one title on the other platform.

Coverage years were calculated using an MS Excel macro created to extract the exact number of coverage years from ranges that had gaps in the years covered. Using this method, I was able to match the number of years with overlap between WoS and Scopus (427,758 years). Scopus covers 255,790 additional years not indexed by WoS, and WoS covers another 68,140 years not indexed by Scopus.

Journals classification by discipline

Journals were classified by four broad disciplines using the National Science Foundation (NSF) classification (NSF 2006): Natural Sciences and Engineering, Biomedical Research (which includes biomedical research and clinical medicine with the exception of health, which is part of social sciences), Social Sciences, and Arts & Humanities.⁵

Data analysis

Cost and Usage

The WoS subscription cost is on average 52% higher than the Scopus subscription. However, our WoS subscription provides access to several products in addition to the Citation Indices including Zoological Record (1864-2019) and BIOSIS Citation Index (1928-2019).

WoS is used between 150% - 279% more than Scopus (see Table 2 and Figure 1).

Table 2. Texas A&M University Scopus and WoS Usage Data (2013-2018)

Usage Report Type	2013	2014	2015	2016	2017	2018
Scopus: PR1 Regular Searches	76,397	75,100	73,984	90,622	76,049	69,134
WoS: DB1 Regular Searches	289,563	270,336	206,706	228,355	288,011	242,331

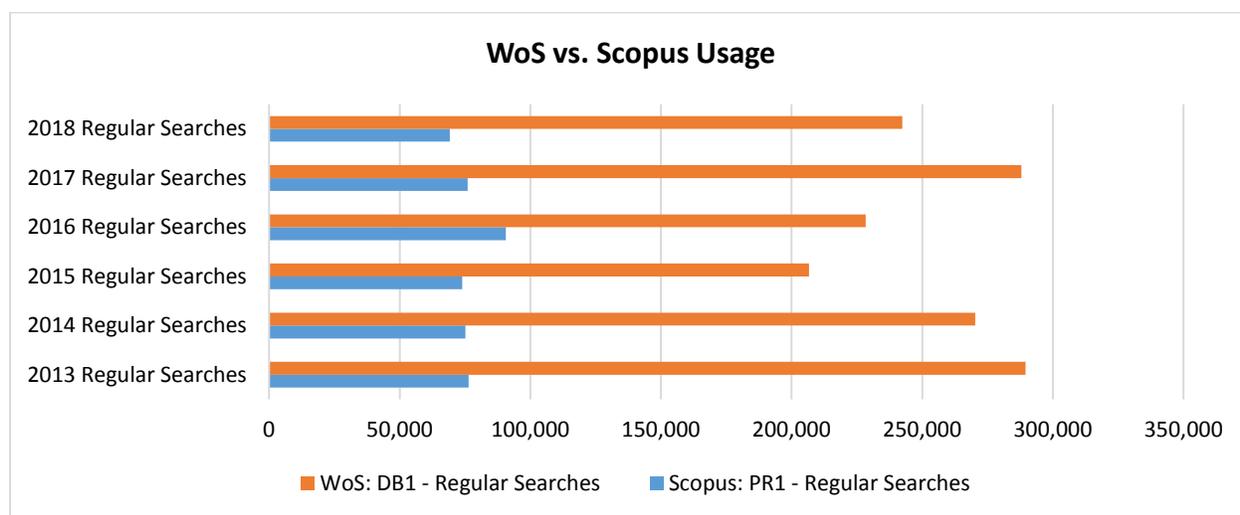


Figure 1. WoS and Scopus Usage Data

⁵ National Science Foundation. (2006). Science and Engineering Indicators. Chapter 5: Academic Research and Development. Data and Terminology. Retrieved from <https://wayback.archive-it.org/5902/20150628042123/http://www.nsf.gov/statistics/seind06/c5/c5s3.htm>

Cost per use was calculated by dividing the total subscription cost by the total number of regular searches (see Table 3 and Figure 2).

Table 3. Texas A&M University Scopus and WoS Cost per Use (2013-2018)

Database	2013 Cost/Use	2014 Cost/Use	2015 Cost/Use	2016 Cost/Use	2017 Cost/Use	2018 Cost/Use
Scopus	\$ 1.43	\$ 1.53	\$ 1.55	\$ 1.40	\$ 1.75	\$ 2.02
WoS	\$ 0.58	\$ 0.64	\$ 0.87	\$ 0.82	\$ 0.68	\$ 0.88

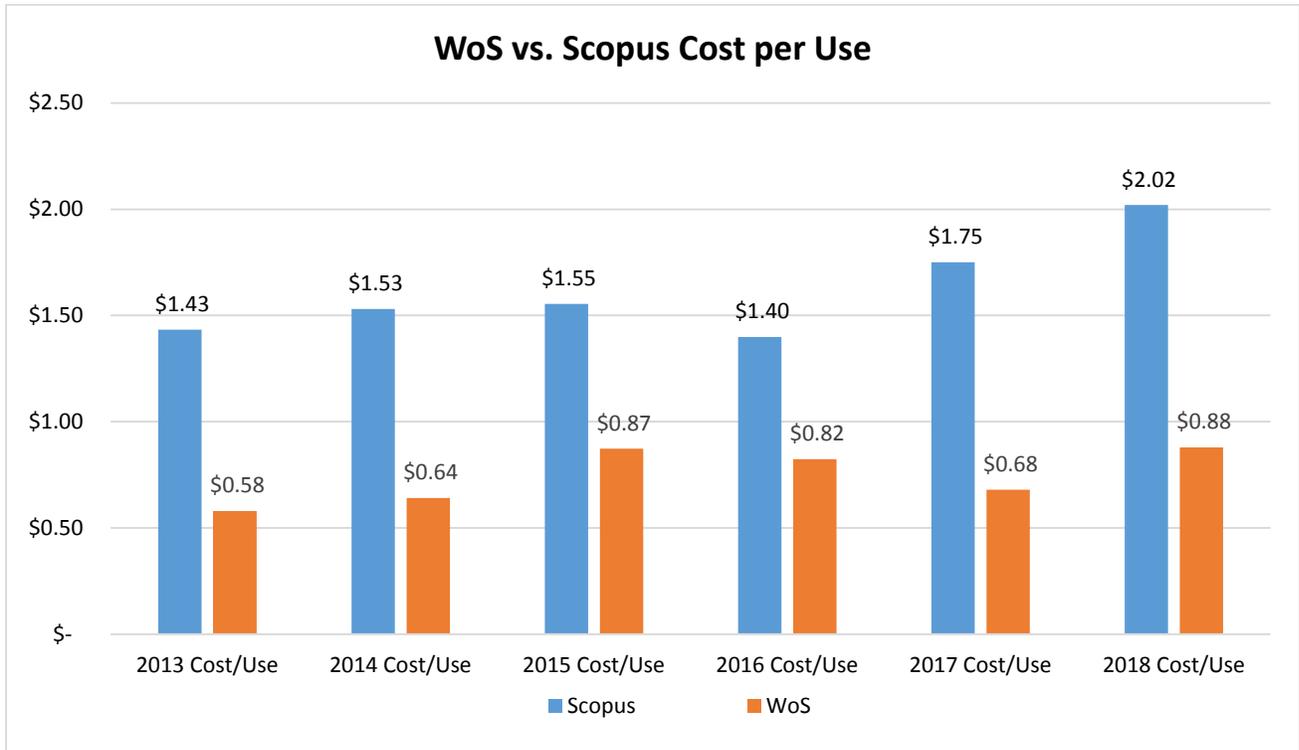


Figure 2. WoS and Scopus Cost per Use (2013-2018)

Papers Published by Texas A&M Authors Indexed by WoS and Scopus

A review of papers published by Texas A&M authors indexed by the two databases showed comparable numbers: 43,068 articles indexed by WoS over a ten-year period (2007-2016) and 48,285 articles indexed by Scopus (2008-2017).

Table 4. Papers Published by Texas A&M Authors

Database	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Scopus		3,939	4,154	4,465	4,750	4,656	4,817	4,966	5,162	5,439	5,937	48,285
WoS	3,523	3,789	3,990	4,322	4,540	4,618	4,668	4,740	4,712	4,166		43,068

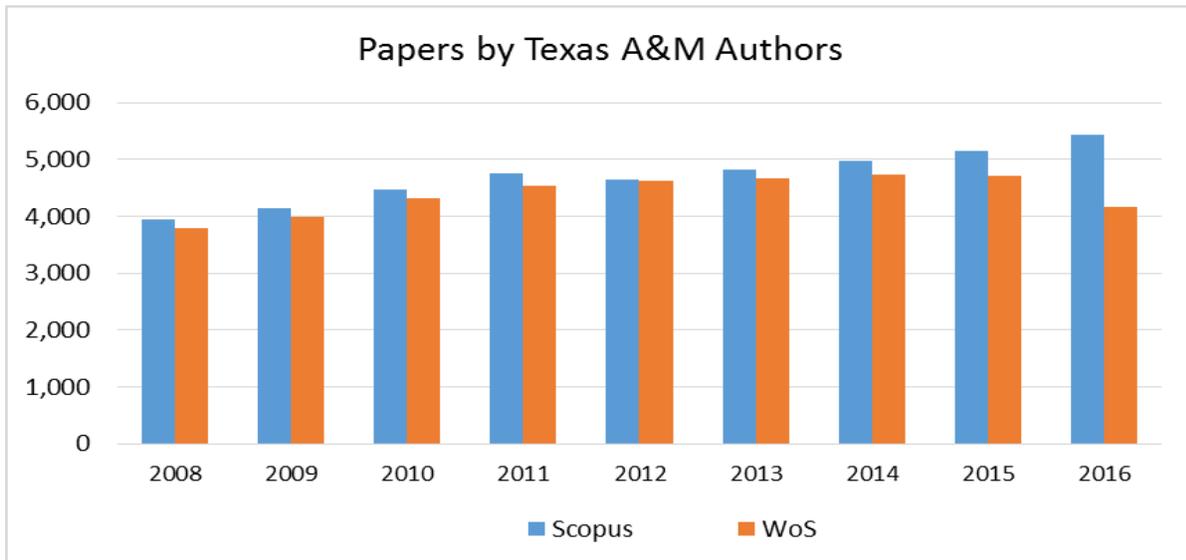


Figure 3. Papers Published by Texas A&M Authors, 2008-2016

Coverage Overlap of Web of Science and Scopus

Coverage by broad disciplines:

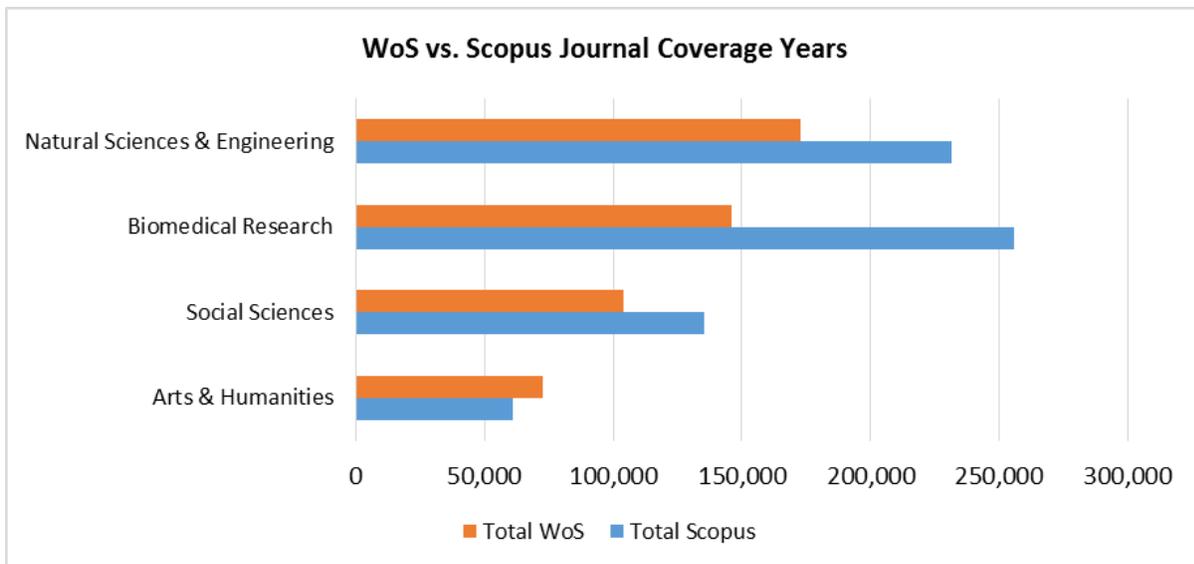


Figure 4. WoS and Scopus Journal Coverage Years, by Discipline

The WoS and Scopus journal coverage overlap has been examined by reviewing:

- Journals that are indexed in WoS but not Scopus – WoS only
- Journals that are indexed in both, WoS and Scopus – Overlap
- Journals that are indexed in Scopus but not in WoS – Scopus only

Figure 5 shows the journal overlap at the title level of both databases, as well as percentages of titles indexed in Scopus but not in WoS and vice versa. Figure 6 shows the overlap of coverage years, as well as coverage years of journals that are indexed in WoS only and of those indexed in Scopus only.

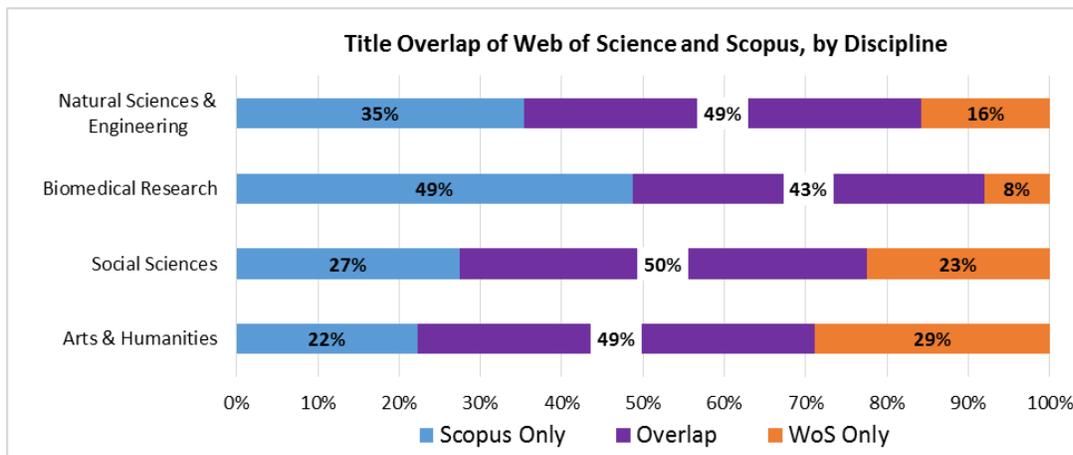


Figure 5. WoS and Scopus Journal Overlap by Discipline – Title level

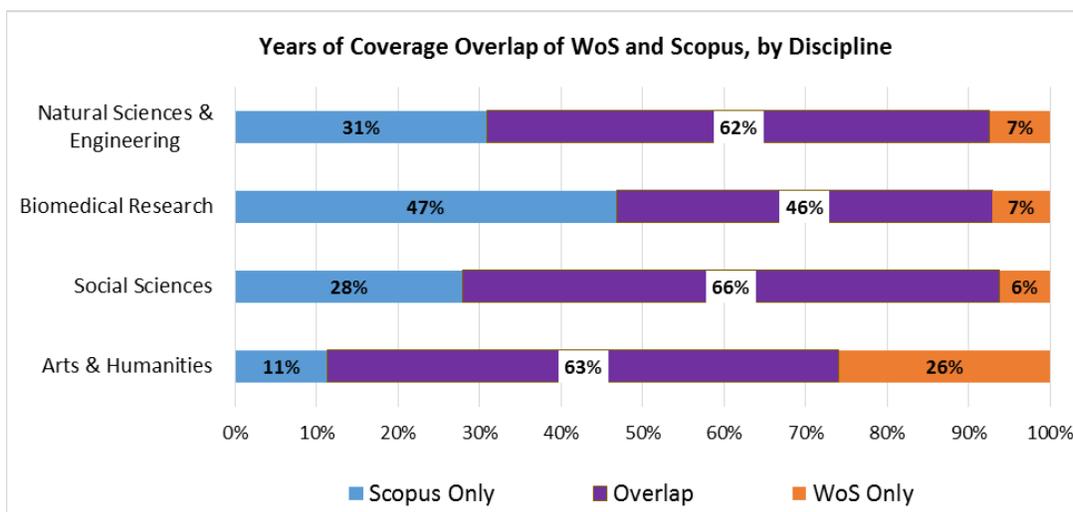


Figure 6. WoS and Scopus Journal Overlap by Discipline - Coverage Years

As noted before⁶, the journal coverage for WoS and Scopus in Social Sciences and Arts & Humanities is low. Scopus' strongest coverage is in Biomedical Research followed by Natural Sciences and Engineering. As expected, the WoS has the strongest coverage in Natural Sciences and Engineering, followed by Biomedical Research.

The percentage of journal titles indexed only by Scopus is higher than the percentage of titles indexed by WoS in three broad disciplines: Natural Sciences & Engineering, Biomedical Research, and Social Sciences. While other studies found that Arts & Humanities are better represented in Scopus, this review showed that WoS had better coverage than Scopus in the Arts & Humanities. This may be a result of the way the author assigned WoS journal titles to the Arts & Humanities field, as other studies may have classified many of them as Social Sciences titles. When combined, Scopus' Social Sciences and Arts & Humanities coverage amounts to 196,344 years, while WoS' coverage in the Social Sciences and Arts & Humanities fields amounts to 176,942 years.

⁶ Mongeon, P & Paul-Hus, A. (2016). "The journal coverage of Web of Science and Scopus: a comparative analysis". *Scientometrics* 106. 213-228. DOI: 10.1007/s11192-015-1765-5