

## 5 The Benchmarking module

### 5.1 What is the Benchmarking module?

The Benchmarking module lets you easily evaluate your research performance in comparison to others. How does your institution compare to others in your region, country or the world?

Choose from a broad range of metrics. You can use 15 different metrics to compare the performance of different types of entities, such as institutions, research teams and individual researchers.

[View a short video about the Benchmarking module](#)

[Which metrics are available to use in SciVal?](#)

### 5.2 Working with the Benchmarking module

#### 5.2.1 Selecting metrics

Select the metric you want to view. By default, the metric Scholarly Output (number of publications) is shown. To view a different metric, click on the “y-axis” button along the top of the chart and select it from the list. Then click on the “Choose as y-axis” button.

[Which metrics are available to use in SciVal?](#)

Choose metric options. Each metric has different options, but all let you choose the types of publications to include. For instance, you can choose to include only articles and reviews, or only conference papers.

Citation metrics also let you choose whether or not you want to include self-citations.

Plot metrics against each other. You can plot two or even three different metrics against each other. Two metrics are shown as a scatter plot. Three metrics are shown as a bubble chart, where the size of the bubbles (circles) on the chart indicates the value of the third metric.

Select a second metric from the “x-axis” button. This will replace “Publication Year” with that metric. If you want, you can select a third metric from the “bubble size” button.

Let's compare Athena, Yale and the United States on three metrics: Scholarly Output, Field-Weighted Citation Impact and International Collaboration.

1. Select Athena University, Yale and the United States from the entity selection panel on the left-hand side of the screen.
2. Click on the “y-axis” button and select Scholarly Output, if this wasn't already selected
3. Click on the “x-axis” button and select Field-Weighted Citation Impact.
4. Click on the “Bubble size” button and select Collaboration. In the options for this metric, select “International collaboration”.
5. The chart now shows that the Field-Weighted Citation Impact of Athena is lower than Yale's, but higher than the United States average. The amount of international collaboration is slightly lower than Yale's.

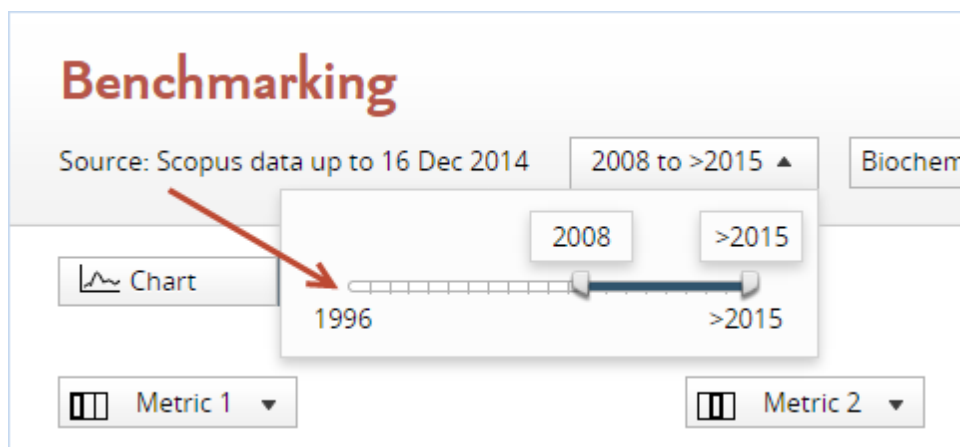


You don't have to select two *different* metrics necessarily. Instead, you can also select the *same* metric for both "x-axis" and "y-axis", but with different options. For instance, you could compare outputs in the top 1% percentile to outputs in the top 10% percentiles, or you could compare international collaboration to national collaboration.

## 5.2.2 Selecting a year range

You can view publication data from 1996 until the present. Use the time period selector at the top of the page to select the start and end year.

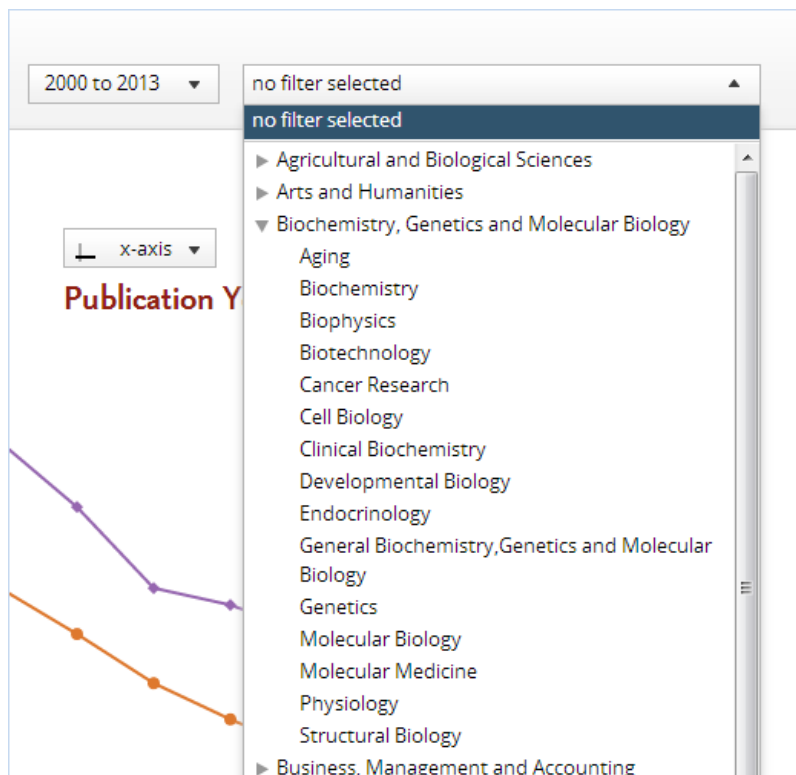
You may want to exclude the current year because, by the end of the current year, Scopus has only received and indexed a certain portion of the current year's journals from other publishers.



### 5.2.3 Filtering by journal category

Interested in evaluating or comparing your performance within a specific discipline? Choose from 27 categories and 334 subcategories in the Scopus journal classification. Or use a [different journal classification](#).

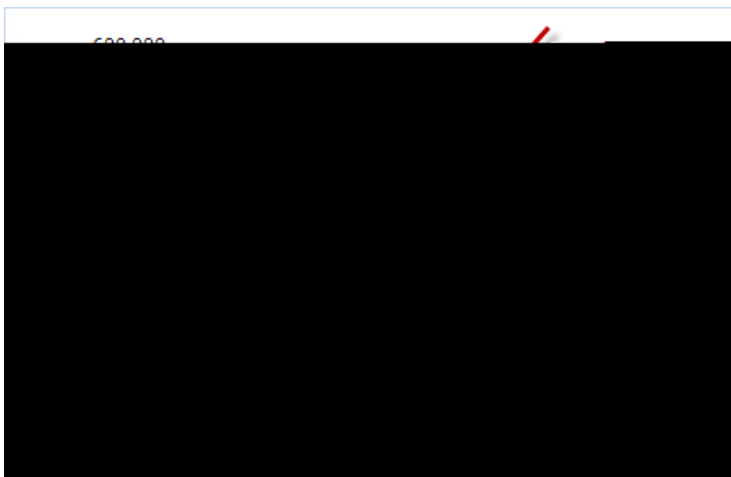
1. Use the filter dropdown at the top of the page to select a specific journal category.
2. The subcategories appear when you click on the arrow in a category.



### 5.2.4 Working with the chart

Chart legend. Each entity plotted on the chart has a different color and symbol. This is shown in the legend shown below to the chart. You can hide a particular entity from the chart by clicking on the "eye" icon next to that item in the legend. Below the legend, you can find the Metrics detail option which gives you further information on the metrics you selected.

Data pop-ups. Hover over a data point on the chart and a small pop-up will appear with the metrics you have selected and their values for that year.



Export the chart. You can export the chart to an image file by selecting “Export the chart as an image file” from the Export menu in the top right corner. This will export the chart in several different file formats at once (JPEG, PNG, SVG and PDF). You can also export the underlying data by choosing “Export the data to a spreadsheet file”.

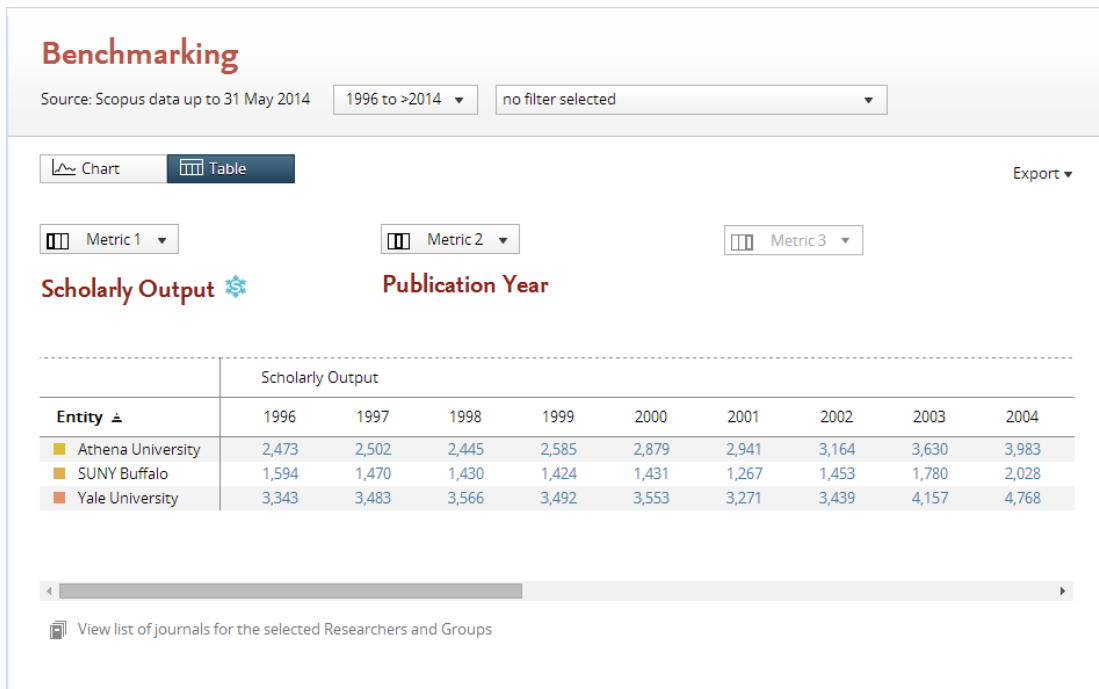
### 5.2.5 Working with the table

When viewing a metric by year, you can scroll the table horizontally to see the values for all years in the selected year range.

View the overall value. When viewing metrics over a year range, the rightmost column will show the overall value for that metric. This can be the total number of publications for the selected year range (for Scholarly Output for instance) or the overall value for the selected year range (for Field-Weighted Citation Impact for instance).

View the underlying publications. When numbers of publications are shown in the table, you can click on any number to view the actual list of publications. Numbers of publications are shown for Scholarly Output or Cited Publications, for example.

Export the data. To export the data in the table to a spreadsheet file, choose “Export the data to a spreadsheet file” from the Export menu in the top right corner. You can then view and manipulate the data in an external spreadsheet application such as Microsoft Excel.



### 5.2.6 View the list of journals

When you have selected one or more researchers or groups of researchers in Benchmarking, you can view the list of journals for those entities.

Click on "View list of journals for the selected Researchers and Groups" below the chart or table in Benchmarking to open the "List of journals" window.



This shows you a breakdown by academic journal of the selected researchers' and groups' publication output and impact:

**List of journals** ✕

Year range: 2000 to >2014

View the Scholarly Output of the selected entities, by journal: Export ▾ Shortcuts ▾

Journal	SNIP ▾	Neurology	Surgery
New England Journal of Medicine	14,971	5	0
JAMA - Journal of the American Medical Association	9,844	12	3
Nature	8,647	6	0
Science	8,064	8	0
The Lancet Neurology	7,726	8	0
Nature Genetics	7,211	7	0
The Lancet Oncology	6,796	1	1
Cell	6,579	6	0
Annals of Internal Medicine	6,502	0	2
The Lancet	6,197	3	1
Nature Medicine	5,206	4	2
Journal of Clinical Oncology	4,694	6	7
Journal of the American College of Cardiology	4,650	0	3
Archives of Internal Medicine	4,563	2	1
Circulation	4,273	3	3

As usual the publication output is limited to the selected year range and subject area (the selected journal category filter, if any). The journals are arranged by highest [SNIP](#) or [SJR](#) value.

View citation impact. By default, publication output is shown, but you can also view citation impact. Use the drop-down menu at the top to switch from Scholarly Output (number of publications) to either Citation Count or Field-Weighted Citation Impact.

Export the list of journals. Go to the Export menu and select "Export the list of journals to a spreadsheet file". This will export the SNIP and SJR values of each journal, as well as the Scholarly Output, Citation Count and Field-Weighted Citation Impact for each researcher or group's output in that journal.

Define a research area. You can quickly define a new research area based on this list of journals. Use the link in the Shortcuts menu to start the define process for a research area with the list of journals preselected. If desired, you can then add additional journals, remove journals or filter the research area by a specific institution or country for instance.

This enables to you to create a journal profile for a group of researchers and benchmark the group against that profile. You can use this to compare the journal profile of one group of researchers to the journal profile of another group. Or you can see how the citation impact of your researcher group compares to the impact of all researchers publishing in the same set of journals.

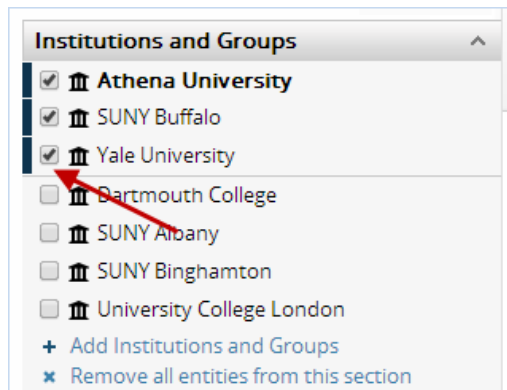
## 5.3 How can you use the Benchmarking module?

### 5.3.1 Compare your institution to others

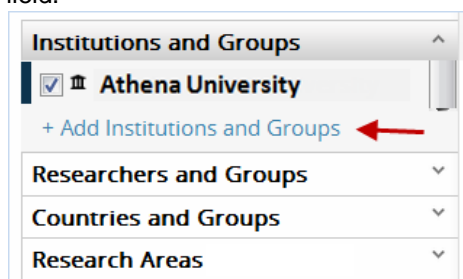
How does your institution compare to peer institutions?

Let's say that your institution, Athena University, wants to compare its research performance with SUNY Buffalo, Yale and Dartmouth.

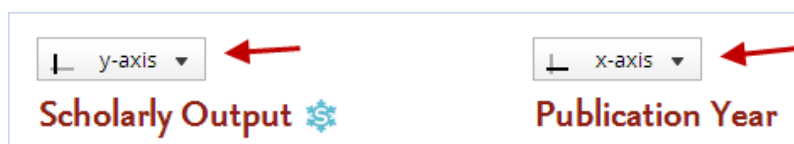
1. Start by setting up the list of institutions, using the entity selection panel on the left side of your screen. Make sure your institution and the peer institutions are all selected (checked off) in the entity selection panel.



2. If an institution is not listed, click “Add Institutions and Groups” and start typing the name of that institution. Then select the institution from the list of search results that appears below the text field.



3. By default, you will view Scholarly Output by publication year. This shows you the total research output of your selected institutions over a period of time.
4. Use the buttons along the top of the chart to select different metrics. Use the “y-axis” button to change from Scholarly Output to another metric. To compare two different metrics, select a second metric from the “x-axis” button.



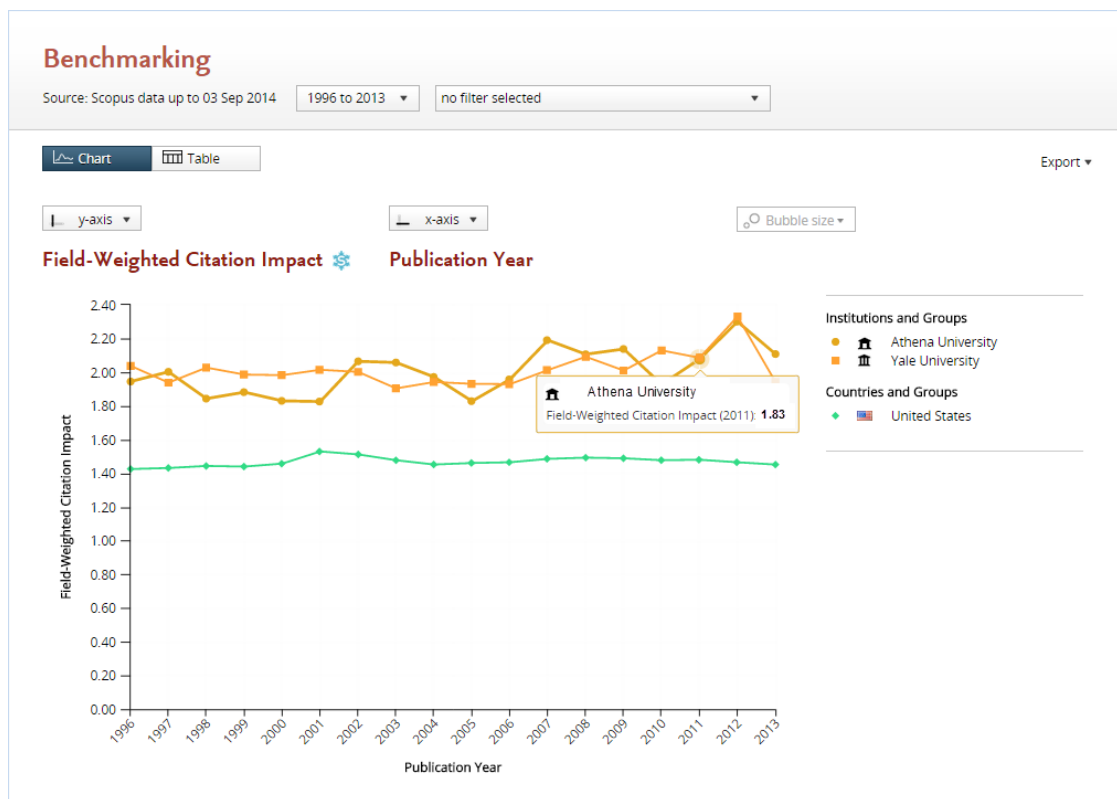
### 5.3.2 Benchmark your institution against the national average

Field-Weighted Citation Impact is a good metric to use when you want to compare your institution’s research performance to the national average. This is because Field-Weighted Citation Impact adjusts for differences in citing behavior across disciplines. A score of 1.00 means citations are as expected based on the global average. More than 1.00 means that citations are more than expected. Less than 1.00 means the citations are less than expected.

1. Select Field-Weighted Citation Impact from the “y-axis” button.
2. Make sure your institution and your country are selected in the entity selection panel on the left side.
3. If your country is not listed in the entity selection panel, click “Add Countries and Groups” and start typing the name of that country. Then select the country from the list of search results that appears below the text field.

Let’s say that you want to compare your institution, Athena University, to the national average. The Field-Weighted Citation Impact for Athena was 1.83 in 2011. This means citations were 83% higher than expected based on the global average. When plotted against the United States and Yale, we can see that Athena’s Field-Weighted Citation Impact is higher than the US national average, but it is slightly lower than Yale.

Other metrics that can be used to compare your institution to the national average include Outputs in Top Percentiles (by percentage), and Publications in Top Journal Percentiles (by percentage), and Collaboration (by percentage).



### 5.3.3 Analyze developments in a field over time

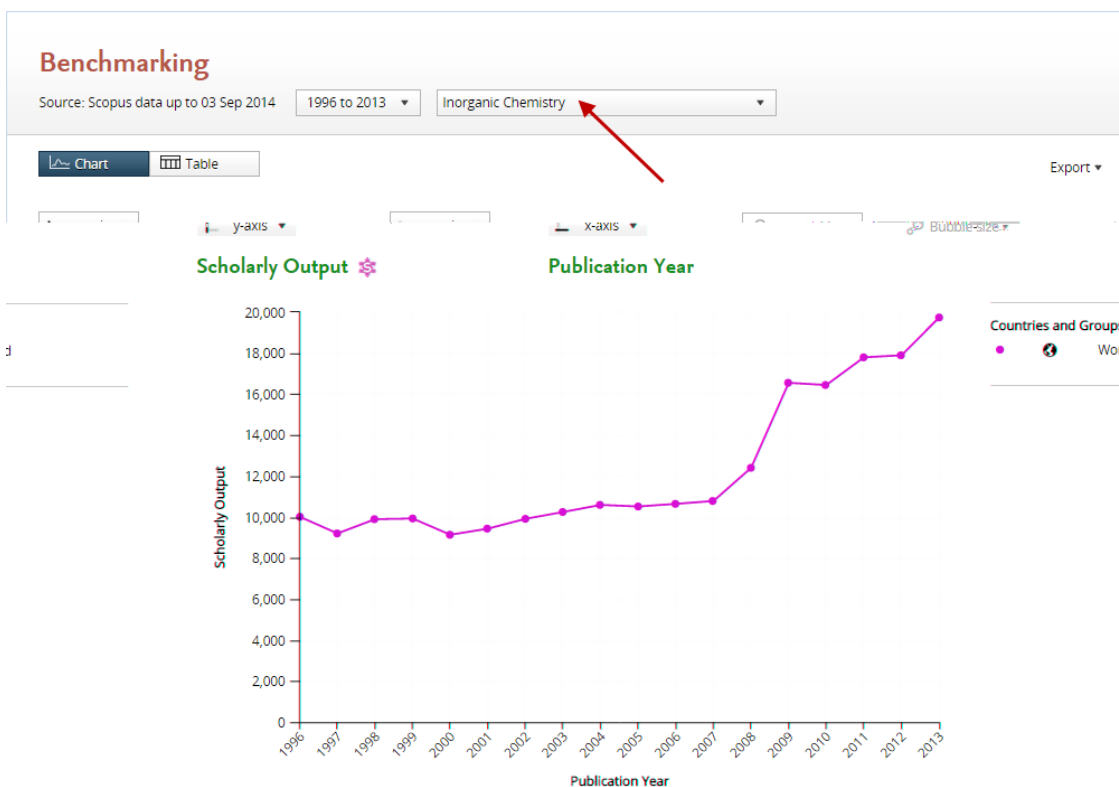
You can view metrics for a specific field of research over time. This lets you analyze developments in that field, such as whether the field is emerging, declining or levelling off.

You can use either journal categories or self-defined research areas. Journal categories are categories in the Scopus journal classification. They represent broad areas of science, such as chemistry or engineering. Self-defined research areas can be more granular or interdisciplinary.

To use a journal category:

1. Choose the journal category from the filter selector at the top of page.
2. Select the World from the entity selection panel.
3. In addition to the World, you can also select your country or your institution. This lets you compare your national or institutional performance to the international trend.
4. Select Scholarly Output from the “y-axis” button and “Publication Year” from the “x-axis” button. You can now see the year-by-year publications trend in this journal category.





5. Try some other metrics, like Field-Weighted Citation Impact, Collaboration or Outputs in Top Percentiles.

SciVal also allows you to define your own research areas and view these in the Benchmarking module.

1. Use the entity selection panel on the left-hand side to select a previously defined research area.
2. You can also define a new research area. In the entity selection panel, click on "Add Research Areas", then "Define a new Research Area".
3. Select the research area in Benchmarking to see the worldwide output in that field.
4. You can select multiple research areas to compare the output in one research area to the output in another area.

### 5.3.4 Identify suitable benchmark institutions

If you have access to the Overview module, you can make use of it to identify suitable benchmark institutions for your institution. These are institutions that you can use to compare your own institution against, in order to evaluate how well your institution has performed.

Say you are looking for benchmark institutions for Athena University within the United States in the field of chemistry.

1. In the Overview module, select the United States and filter by chemistry.
2. Go to the Institutions tab. This will now list the top U.S. institutions by number of publications in chemistry journals.

**United States**

Source: Scopus data up to 25 Oct 2013    2010 to 2013    Chemistry

Summary    Publications    Citations    Competencies    **Institutions**

**Institutions in the United States**

Below is a list of Institutions in the United States: Export ▼

Institution	Publications	Citations	Authors
1. <b>Athena University</b>	3,179 ▲	30,723	3,399 ▲
2. Massachusetts Institute of Technology	2,751 ▲	29,481	2,882 ▲
3. University of California at Berkeley	2,380 ▲	31,824	2,549 ▲
4. Harvard University	2,287 ▲	22,439	3,137 ▲
5. University of Texas at Austin	2,181 ▲	21,342	2,059 ▲
6. Stanford University	2,168 ▲	27,245	2,367 ▲
7. Texas A and M University	2,053 ▲	15,333	1,877 ▲
8. Georgia Institute of Technology	2,052 ▼	19,484	2,075 ▲
9. University of Michigan	1,977 ▲	18,353	2,408 ▲
10. Lawrence Berkeley National Laboratory	1,914 ▲	21,280	1,816 ▲

- You can now select one or more institutions from this list that you would like to match or exceed in terms of research performance.

### 5.3.5 Compare your institution against collaborating institutions

You can use the Overview or Collaboration modules to find the top collaborating institutions of your institution. You can then compare these institutions in the Benchmarking module.

- Go to the Overview module and select your institution.
- Go to "Top collaborating institutions" under the Collaboration tab
- Choose "Benchmark these institutions" from the Shortcuts menu.

**Top collaborating Institutions** Export ▼    Shortcuts ▲

by number of publications co-authored with Northwestern University

Institution	Co-authored publications	co-authored publications	Co-authors
1.  Harvard University	1,286 ▲	18,266	1,782 ▲
2.  Johns Hopkins University	1,038 ▲	19,210	1,072 ▲
3.  University of California at Los Angeles	980 ▲	17,393	1,012 ▲
4.  University of Chicago	977 ▲	12,218	1,203 ▲
5.  University of Illinois at Chicago	977 ▲	10,478	990 ▲
6.  University of Michigan	857 ▲	11,772	831 ▲
7.  Argonne National Laboratory	788 ▲	9,694	611 ▼
8.  University of Wisconsin	745 ▲	12,082	759 ▲
9.  University of Washington	744 ▲	11,727	790 ▲
10.  The Ohio State University	710 ▲	12,190	599 ▲

→ View Institutions collaborating with Northwestern University in more detail  
→ Benchmark these Institutions

4. You will now jump to the Benchmarking module and your institution, plus the top collaborating institutions will be selected there.
5. Note that the selected year range in Overview will also be selected in Benchmarking.