Bibliographic databases

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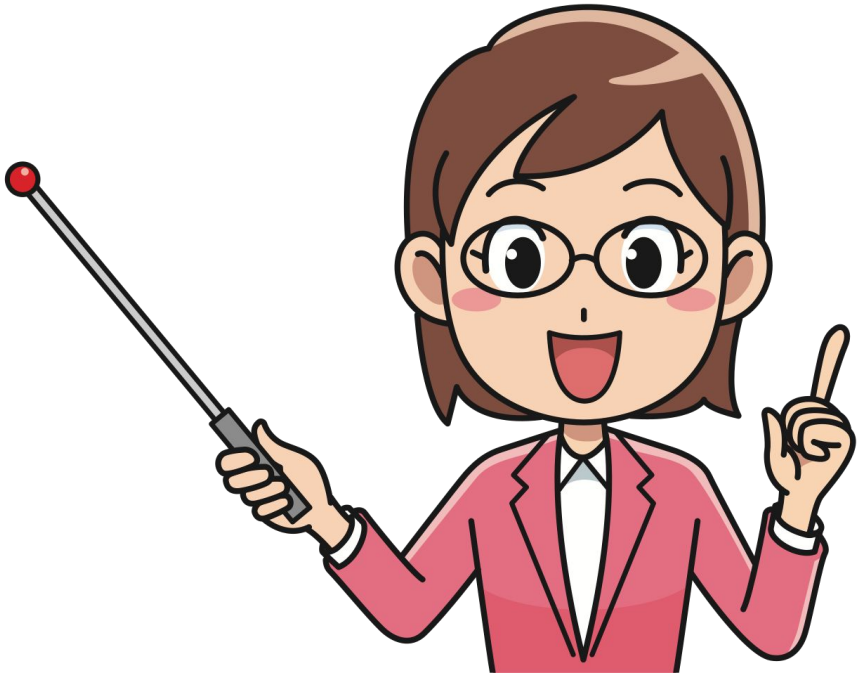
Learning outcomes

- Citation databases and bibliographic databases
- Research by topic
- Sources evaluation and retrieval
- Bibliography and styles
- Practical exercises



Search by topic

You’re asked to gather information on the topic:

```
Iridium cp* complexes
```

What tool would you use?

Choosing the right instrument for the job

Choosing the right instrument for the job

A recent study compared the citations counted by Google Scholar, Scopus and Web of Science:

Martín-Martín, A., Orduna-Malea, E., Thelwall, M., & Delgado López-Cózar, E. (2018). Google Scholar, Web of Science, and Scopus: A systematic comparison of citations in 252 subject categories. *Journal of Informetrics*, 12(4), 1160–1177.
https://doi.org/10.1016/J.JOI.2018.09.002
Open Access version

Online tool
https://albertomartin.shinyapps.io/citation_overlap_2018/

Chemical & material sciences coverage

Overlap of 218,751 citations to 170 highly-cited documents in the area of Chemical & Material Sciences

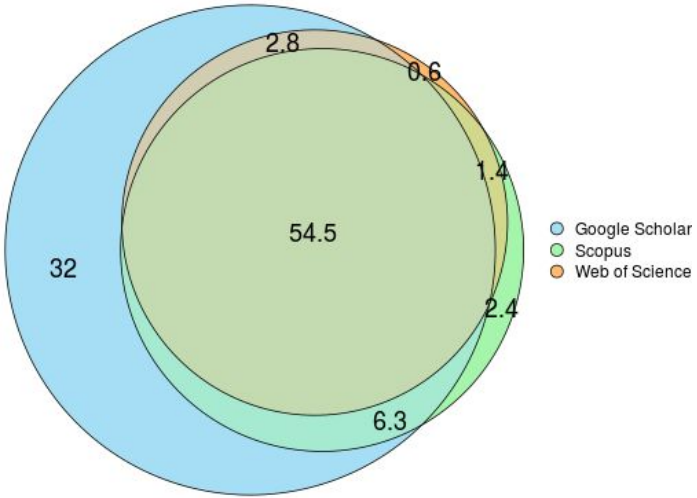


Image create with the online tool available here:
https://albertomartin.shinyapps.io/citation_overlap_2018/

Physics and Mathematics coverage

Overlap of 273,185 citations to 225 highly-cited documents in the area of Physics & Mathematics

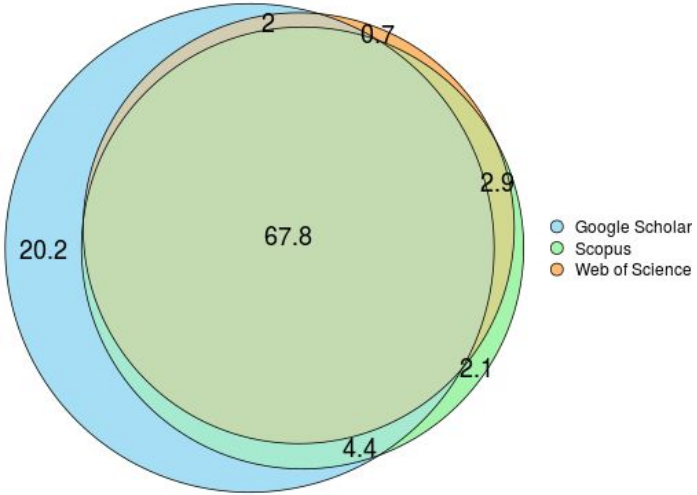


Image create with the online tool available here:
https://albertomartin.shinyapps.io/citation_overlap_2018/

Pharmacology and Pharmacy coverage

Overlap of 8,272 citations to 10 highly-cited documents in the field of Pharmacology & Pharmacy

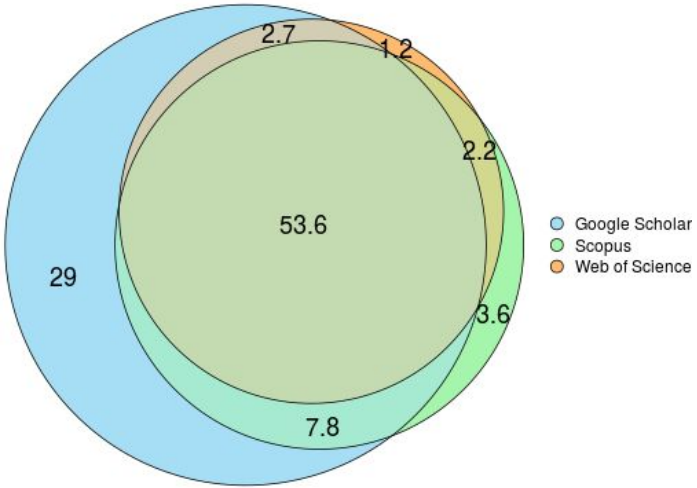


Image create with the online tool available here:
https://albertomartin.shinyapps.io/citation_overlap_2018/

Let’s get back to our research:

Iridium cp* complexes

How would you set up the search (terms, keywords)?

Can you broaden or restrict the results?

Let’s get back to our research:

`Iridium cp* complex~~es~~`

Using the singular form of a word in your search retrieves the singular, plural, and possessive forms of most words

Let’s get back to our research:

```
Iridium cp* complexes

Iridium {cp*} complex
```

To search specifically for a special character, enclose it in braces

Let’s get back to our research:

```
Iridium cp* complexes

Iridium {cp*} complex

Iridium Pentamethylcyclopentadienyl complex
```

Of course we can substitute `cp*` with the proper name

Let’s get back to our research:

```
Iridium cp* complexes

Iridium {cp*} complex

Iridium Pentamethylcyclopentadienyl complex
```

We can also use some keywords to filter the results:

```
catalysis and/or synthesis
```

Let’s try another research topic:

NHC palladium or gold complexes
in bioinorganic chemistry

First clean the string:

NHC palladium OR gold complex~~es~~
~~in~~ (bioinorganic) ~~chemistry~~

OR is a *Boolean operator*: it must be written in capital letters

First clean the string:

NHC palladium OR gold complex~~es~~
~~in~~ (bioinorganic) ~~chemistry~~

OR is a *Boolean operator*: it must be written in capital letters

No plural

First clean the string:

NHC palladium OR gold complex~~es~~
~~in~~ (bioinorganic) ~~chemistry~~

OR is a *Boolean operator*: it must be written in capital letters

No plural

Prepositions must be omitted

First clean the string:

NHC palladium OR gold complex~~es~~
~~in~~ (bioinorganic) ~~chemistry~~

OR is a *Boolean operator*: it must be written in capital letters

No plural

Prepositions must be omitted

Chemistry is already implied

First clean the string:

NHC palladium OR gold complex~~es~~
~~in~~ (bioinorganic) ~~chemistry~~

OR is a *Boolean operator*: it must be written in capital letters

No plural

Prepositions must be omitted

Chemistry is already implied

We can limit the research to bioinorganic later

First clean the string:

```
“N-heterocyclic carbene” palladium OR gold complex
```

Expand the acronym NHC, putting it between quotes because we want the terms to be together

You can try without quotes and see if you got different results

A little more complex research:

```
TITLE-ABS-KEY(palladium OR gold complex)
        AND (LIMIT-TO(EXACTKEYWORD,
        "N-heterocyclic Carbenes"))
```

The first line searches for the words between the parentheses in the fields ‘Title’, ‘Abstract’ and ‘Keywords’. Then the following lines limit the research to documents with the keyword ‘N-heterocyclic Carbenes’
We can further refine the research, adding ‘bioinorganic’

Let’s try another research topic:

```
XRD studies on GO
```

Let’s try another research topic:

XRD ~~studies~~ → study ~~on~~ GO

As seen before:

no plural

no article/ prepositions

Let’s try another research topic:

```
"X-ray diffraction" "Graphene Oxide"
```

As already seen, you can replace acronyms with what they stand for.

XRD should be replaced with `X-ray diffraction`

Replace GO with its proper name: `Graphene Oxide`

X-ray diffraction Graphene Oxide

random text random text random text random text X-ray random text random text random text random text random text random text oxide random text random text random text random text random text random text diffraction random text random text random text random text random text random text random text random text random text graphene random text random text random text random text

"X-ray diffraction" "Graphene Oxide"

random text random text random text random text random text random text random text X-ray diffraction random text random text random text random text random text random text random text random text random text random text random text random text random text graphene oxide random text random text random text random text random text random text

X-ray diffraction Graphene Oxide

random text random text random text
random text X-ray random text random text
random text random text random text
random text oxide random text random text
random text random text random text
random text diffraction random text
random text random text random text
random text random text random text
random text random text graphene random
text random text random text random text

"X-ray diffraction" "Graphene Oxide"

random text random text random text
random text random text random text
random text X-ray diffraction random text
random text random text random text
random text random text random text
random text random text random text
random text random text random text
random text graphene oxide random text
random text random text random text
random text random text random text

Use the quotation marks!

Let’s try another research topic:

```
inhibition of Trx for cancer treatment
```

Let’s try another research topic:

`inhibition ~~of~~ Trx ~~for~~ cancer treatment`

Articles and prepositions aren’t useful, remove them

Let’s try another research topic:

```
inhibition Trx cancer treatment
```

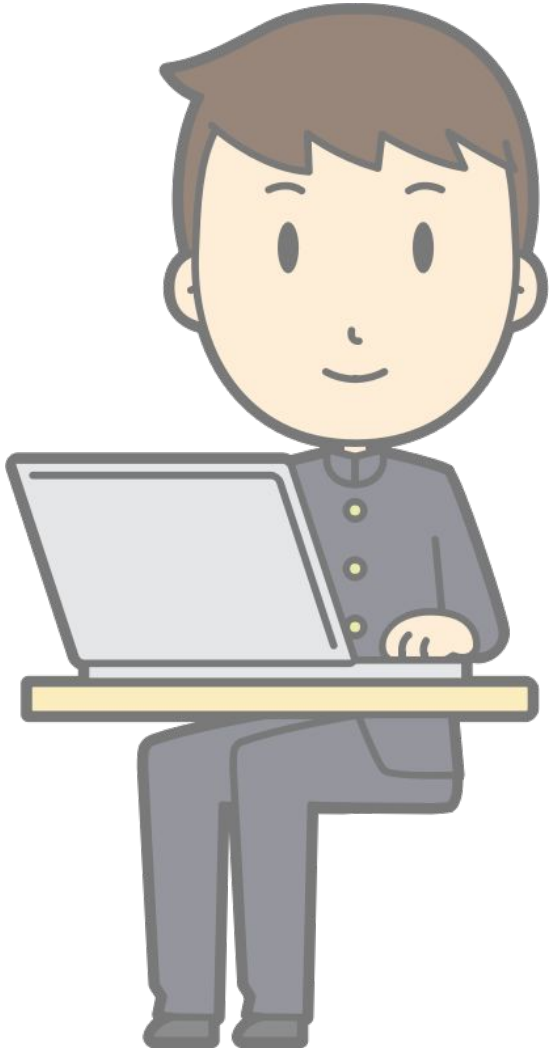
```
inhibition Thioredoxin cancer treatment
```

Replace `Trx` with its proper name: `Thioredoxin`

Managing references

Having learned how to find relevant results, it’s time to put the bibliographic references into your bibliography.

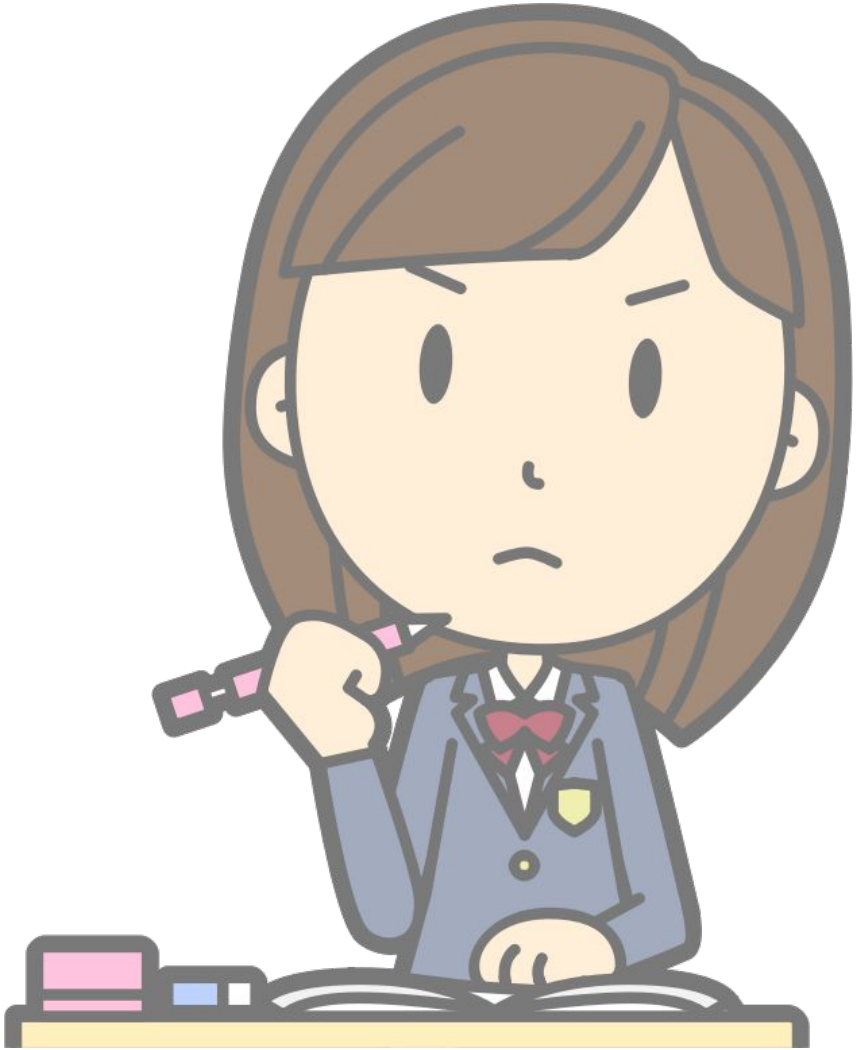
How do you save them? And how do you write them?



Managing references

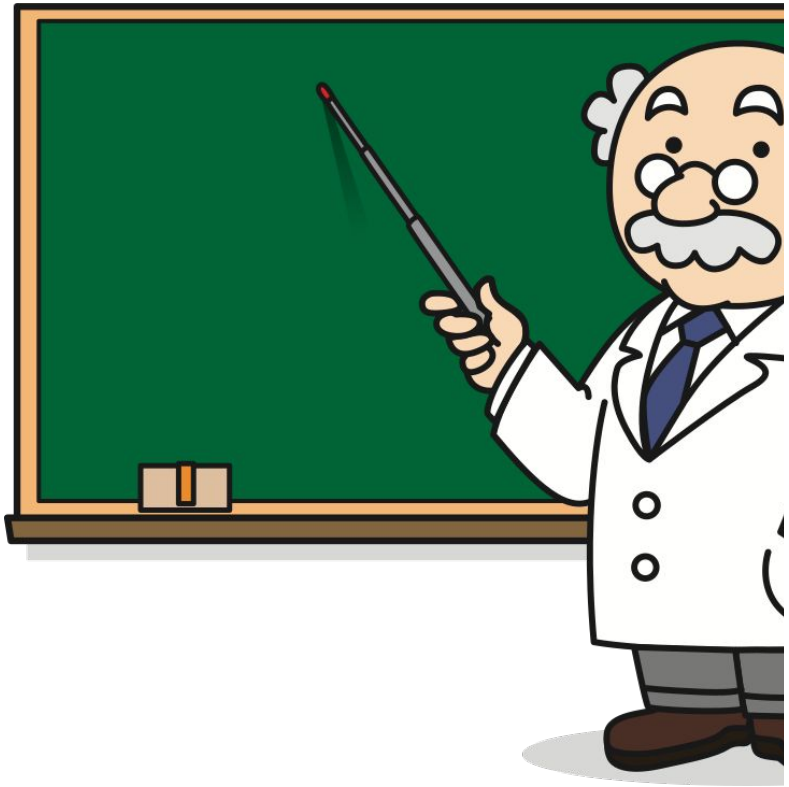
Writing down references by hand is time consuming and prone to errors.

Have you ever heard of bibliographic managers?



Bibliographic managers

Bibliographic managers are softwares that help you retrieving and organizing your references, insert them into document using a specific styles, and create a bibliography.

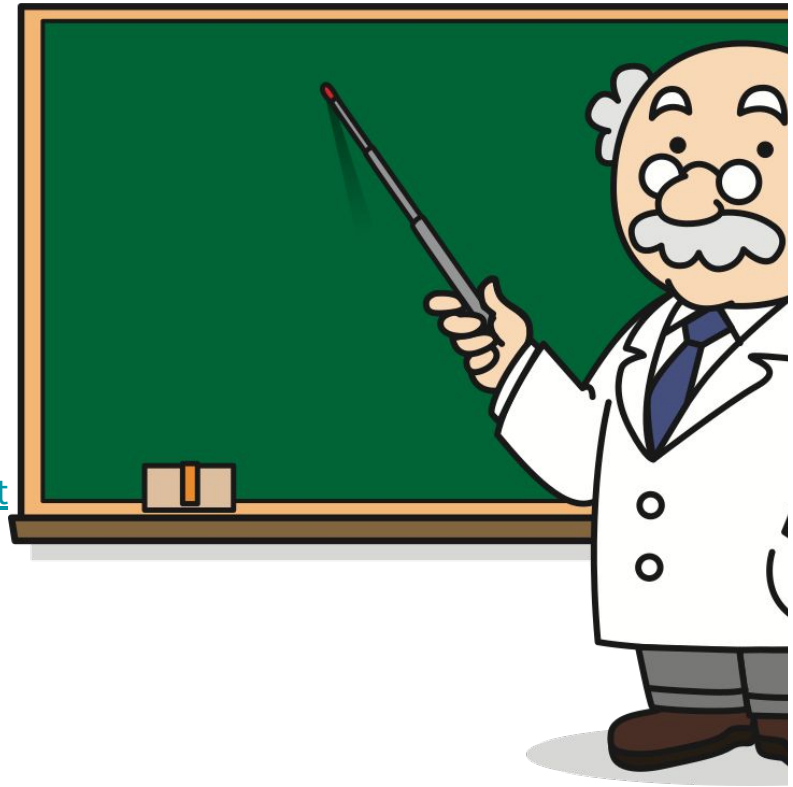


Bibliographic managers

The University Library System periodically organises courses on the free software

zotero

Information:
http://bibliotecadigitale.cab.unipd.it/en/reference-management



Scopus is also a bibliographic database, so you can search for an article with its reference: let’s see an example

To synthesize Bis(1,3-diphenylimidazol-2-ylidene)mercury (II) perchlorate, you need the following article as a reference:

Wanzlick, H.-W.; Schönherr, H.-J. Direct Synthesis of a Mercury Salt-Carbene Complex. Angew. Chem. Int. Ed. Engl. 1968, 7 (2), 141-142. https://doi.org/10.1002/anie.196801412

Let’s try retrieving the article

Wanzlick, H.-W.; Schönherr, H.-J.

Authors

Direct Synthesis of a Mercury Salt-Carbene Complex.

Article's title

Angew. Chem. Int. Ed. Engl.

Journal's title

1968, 7 (2), 141-142.

Year | Volume | Issue | Pages

https://doi.org/10.1002/anie.196801412

Digital Object Identifier

Now try with this one:

Bertel E.; Netzer F.F.
Adsorption of bromine on the reconstructed Au(100) surface: LEED, thermal desorption and work function measurements.
Surface Science 1980, 97 (2-3), 409-424.
https://doi.org/10.1016/0039-6028(80)90676-7

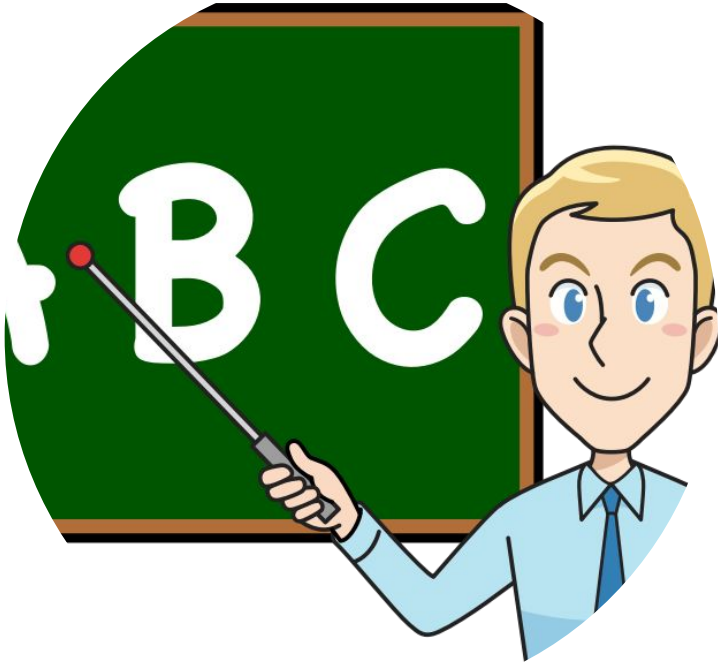
Teamwork time!

Let’s split in groups (20 min):

- Agree upon a research topic
- Search a database
- Find 3 full-text documents, and write a bibliography with them

Teamwork time

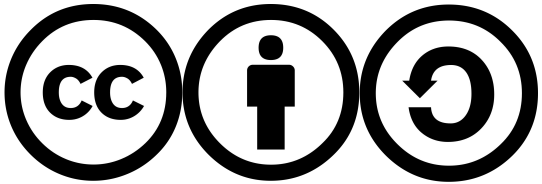
Please show us your results, and tell us how did you get them



Any questions?

WELL DONE! THANK YOU FOR YOUR ATTENTION, AND SEE YOU TOMORROW FOR THE NEXT SESSION ON SCHOLARLY COMMUNICATION

Filippo Vomiero – 03/02/2025



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