

Direction de la documentation

Effective information retrieval / literature searches

Graduate
Research School

université
de BORDEAUX

Learning objectives



By the end of this training session, you will be able to :

- 1 Put in place an efficient and effective literature search
- 2 Identify key concepts and related terms
- 3 Build search statements
- 4 Carry out advanced searches in search engines and key specialized online databases

Information retrieval / Literature search

Methodology

How to begin your research



From natural language to documentary language

The process consists in translating a sentence formulated in natural language such as the following:

What is the impact of air pollution on children's health?

into a sentence that can be understood by a bibliographic search tool, such as this one:

("atmospheric pollution" OR "air pollution" OR particle*) AND (health* OR illness* OR disease*) AND (child* OR kid*)

→ What differences do you observe between the 2?

Use boolean operators

- Boolean (or logical or search) operators connect your search terms to either narrow or broaden your set of results. They are used in advanced searches in academic libraries' catalogues and databases.
- There are 3 Boolean operators:
 - › **AND narrows** your search by allowing you to **search 2 or more terms**
 - › **OR broadens** your search by allowing you to **search similar terms together**
 - › **NOT narrows** your search by excluding terms
- They usually appear in uppercase letters (AND, OR, NOT) to distinguish them from keywords.

Boolean operators

pollution **AND** health

Documents dealing
exclusively with pollution
and health

AND
= INTERSECTION

To find documents that only
respond to the search
words

child **OR** kid

Documents dealing with all
the existing **synonyms** or
related terms of a word

OR
= UNION

To find documents that
respond to at least one of
the words used in the
search, or both.

health **NOT** asthma

Documents dealing with
health but **excluding**
asthma

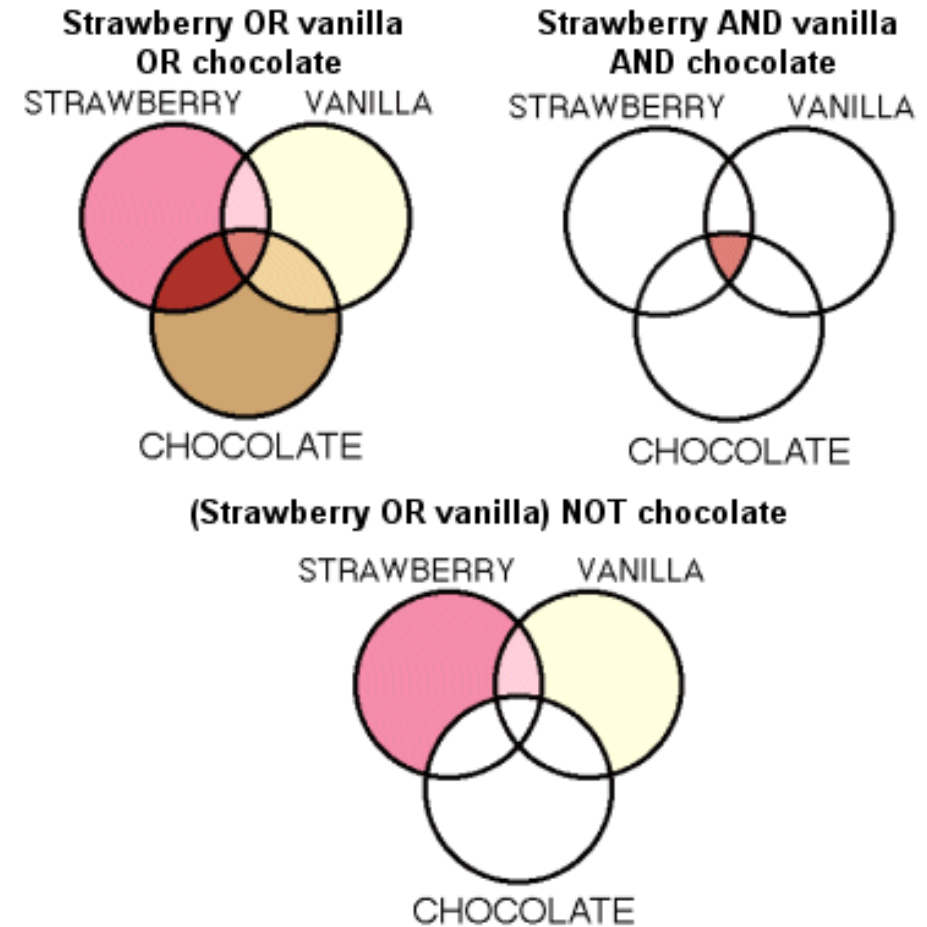
NOT
= EXCLUSION

To find documents that
respond to the first search
word but not the second.

- **AND** : both terms = **to limit** the search
- **OR** : either or both terms = **to broaden** the search
- **NOT** : excluding one term = **to limit** the search



The NOT operator may exclude relevant results.



Source Image : The story of mathematics -
http://www.storyofmathematics.com/19th_boole.html

Search tips



The **truncation**, or asterix, broadens your search to include word endings and spellings, e.g. child* for child, children, childhood



Put your search terms in **quotation marks** to have words appear as an exact phrase, e.g. "atmospheric pollution"



Brackets are used to structure a request :
("air pollution" OR particles) AND child



Avoid using words empty of meaning (i.e. **the, of, some, any**) as they are not recognized by databases

Your search question

→ Use a table to gather keywords and synonyms or related terms

| Concepts | Concept 2 | Concept 3 |
|-----------|------------------------|------------------------|
| Concept 1 | Synonym / related term | Synonym / related term |
| Concept 2 | Synonym / related term | Synonym / related term |
| ... | | |

→ Use a table to keep track of your searches and results obtained

| Tool | Request | Date | Result |
|--------|---|------------|--------|
| Pubmed | ("lead poisoning/prevention and control"[MeSH Major Topic]) AND (2011:2023[pdat]) | 20/04/2023 | 174 |

Literature search and efficiency

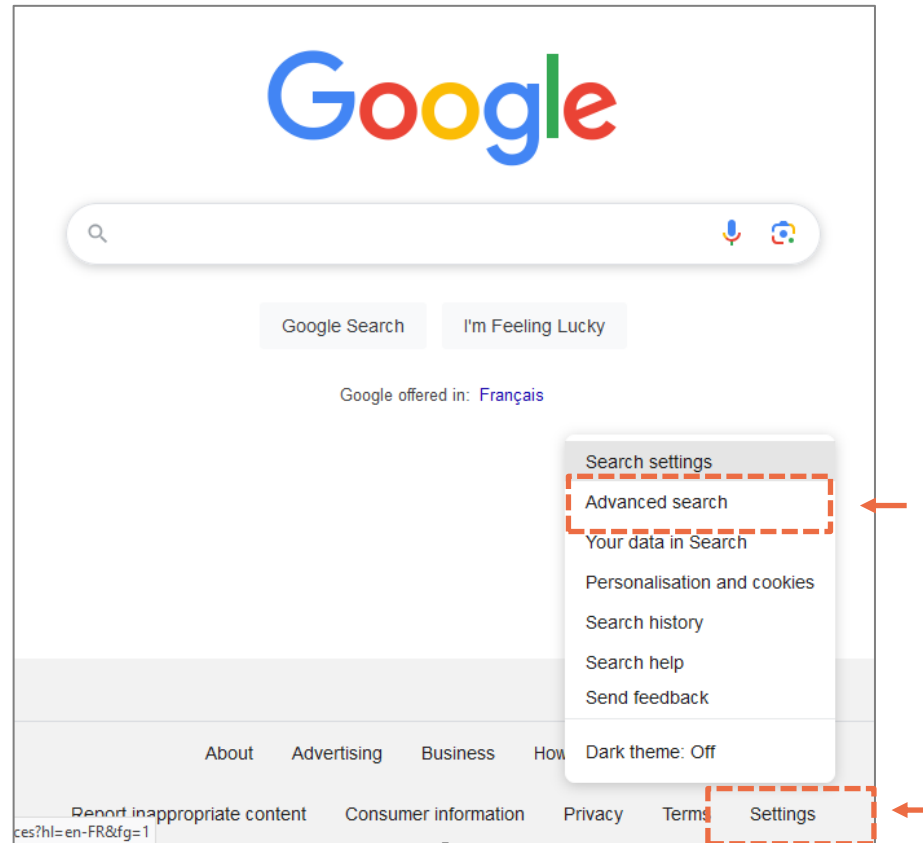
| | To reduce noise (too many results) | To reduce silence (too few results) |
|------------------------------|--|---|
| Keywords | <ul style="list-style-type: none">Check the correct combination of keywords with Boolean operatorsAdd a conceptUse rare, discriminating and specific keywords / terms commonly used by the subject experts | <ul style="list-style-type: none">Check the correct combination of keywords with Boolean operatorsRemove one or more of the concepts in your searchAdd synonyms to your search keywordsUse more generic keywords / broaden your search |
| Choosing search tools | <ul style="list-style-type: none">Choose a search tool with narrower disciplinary coverageChoose a search tool with a coverage that fits your topic | <ul style="list-style-type: none">Choose a search tool with broader disciplinary coverageChoose a search tool with coverage that fits your topic |
| Using search tools | <ul style="list-style-type: none">Check that you are using the correct syntax and query languageSpecify query criteria | <ul style="list-style-type: none">Check that you are using the correct syntax and query languageExpand query criteria |

Information retrieval


Google and Google Scholar

Google : advanced search for better results

→ In Google's settings, select "Advanced search" to open the formular.



Google : advanced search for better results



Advanced Search

Find pages with...

all these words:

pollution child

this exact word or phrase:

any of these words:

atmospheric air particles

none of these words:

numbers ranging from:

to

To do this in the search box.

Type the important words: tri-colour rat terrier

Put exact words in quotes: "rat terrier"

Type OR between all the words you want: miniature OR standard

Put a minus sign just before words that you don't want: -rodent, -"Jack Russell"

Put two full stops between the numbers and add a unit of measurement: 10..35 kg, £300..£500, 2010..2011

Then narrow your results by...

language:

any language

Find pages in the language that you select.

region:

any region

Find pages published in a particular region.

last update:

anytime

Find pages updated within the time that you specify.

site or domain:

who.int

Search one site (like wikipedia.org) or limit your results to a domain like .edu, .org or .gov

terms appearing:

anywhere in the page

Search for terms in the whole page, page title or web address, or links to the page you're looking for.

file type:

Adobe Acrobat PDF (.pdf)

Find pages in the format that you prefer.

usage rights:

not filtered by licence

Find pages that you are free to use yourself.

Advanced Search

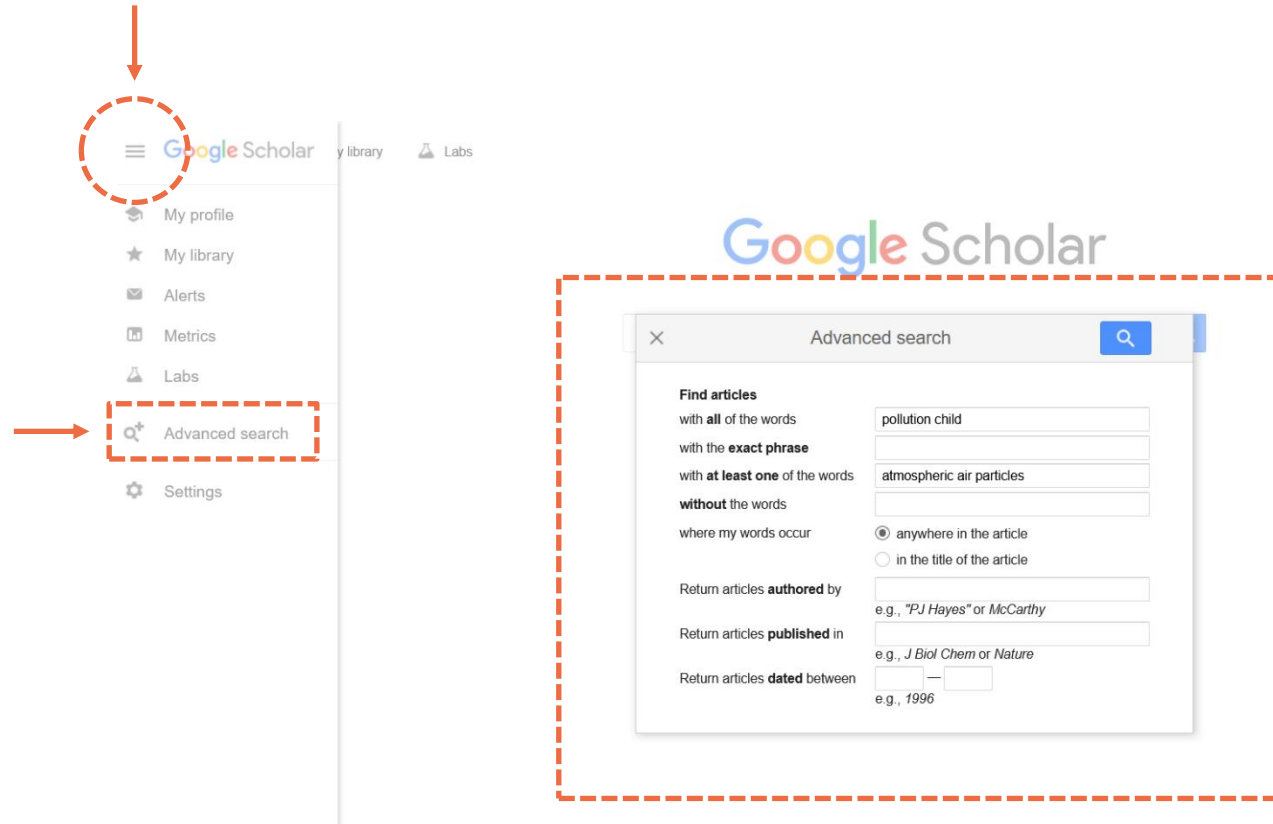
2. Google Scholar

- Google Scholar is a Google product designed for searching academic sources.
- The access to full texts is variable : full text articles are either available in free access (what is called open archives) or using Library Links.
- Google Scholar allows users to affiliate with up to 5 university libraries. Creating this affiliation enables people searching in Google Scholar to easily obtain the full text of articles and other electronic materials licensed by the university academic libraries.
- This program works best for electronic resources. Don't forget to sign in on your ENT beforehand. Once you have configured Google Scholar to be affiliated with Bordeaux University, a link will appear in the results list (see screenshot on next slide).



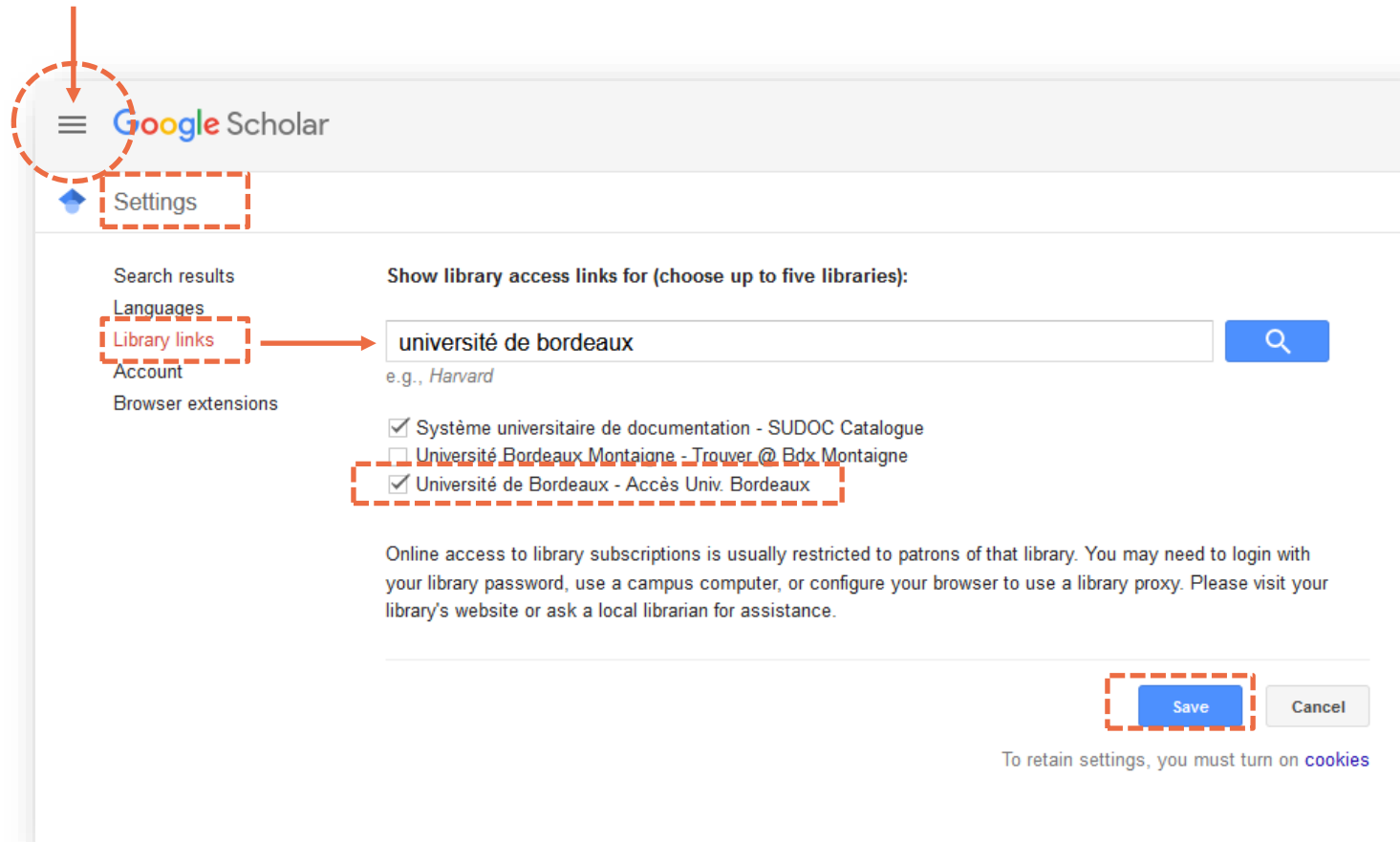
Google Scholar : advanced search for better results

→ In Google Scholar's settings, select "Advanced search" to open the formular.



Google Scholar : library settings

- In Google Scholar's settings, select "Université de Bordeaux" in the **Library links** to access our subscriptions.



The screenshot shows the Google Scholar settings interface. A red dashed circle highlights the menu icon (three horizontal lines) in the top left corner, with a red arrow pointing to it. Below the menu icon, a red dashed box highlights the 'Settings' link. In the left sidebar, a red dashed box highlights the 'Library links' option, with a red arrow pointing to the search input field. The search input field contains the text 'université de bordeaux'. Below the search input, a red dashed box highlights the list of library links, which includes three entries: 'Système universitaire de documentation - SUDOC Catalogue' (checked), 'Université Bordeaux Montaigne - Trouver @ Bdx Montaigne' (unchecked), and 'Université de Bordeaux - Accès Univ. Bordeaux' (checked). At the bottom right, a red dashed box highlights the 'Save' button. Below the 'Save' button, there is a note: 'To retain settings, you must turn on cookies'.

Google Scholar

Settings

Search results
Languages
Library links
Account
Browser extensions

Show library access links for (choose up to five libraries):

université de bordeaux

e.g., Harvard


☒ Système universitaire de documentation - SUDOC Catalogue
☐ Université Bordeaux Montaigne - Trouver @ Bdx Montaigne
☒ Université de Bordeaux - Accès Univ. Bordeaux

Online access to library subscriptions is usually restricted to patrons of that library. You may need to login with your library password, use a campus computer, or configure your browser to use a library proxy. Please visit your library's website or ask a local librarian for assistance.


Save Cancel

To retain settings, you must turn on cookies

Google Scholar



pollution child atmospheric OR air OR particles



Articles

About 2 380 000 results (0,09 sec)

Any time

Since 2025

Since 2024

Since 2021

Custom range...

Sort by relevance


Sort by date

Any type

Review articles

☐ include patents



☒ include citations

 Create alert

The effects of air pollution on children

DV Bates - *Environmental health perspectives*, 1995 - pmc.ncbi.nlm.nih.gov


... **air** pollutants on **children's** health is complicated by the fact that there are a number of types of **air pollution** ... in studying the impact of **air pollutants** on **children**. There are several reasons ...

☆ Save  Cite Cited by 281 Related articles All 10 versions 

Health effects of ambient air pollution in children

S Salvi - *Paediatric respiratory reviews*, 2007 - Elsevier


... Exposure to fine **particles** has ... in **children** exposed to various oxidant **air pollutants**. Oxidative stress is the main underlying mechanism responsible for the harmful effects of **air pollutants** ...

☆ Save  Cite Cited by 493 Related articles All 6 versions

Personal exposure of children to air pollution

MR Ashmore, C Dimitroulopoulou - *Atmospheric Environment*, 2009 - Elsevier


... exposure of **children**, since they are a particularly sensitive group. Much of **children's** time is ... For this reason, **children's** personal exposures to **air pollutants** differ significantly from both ...

☆ Save  Cite Cited by 315 Related articles All 8 versions

Air pollution and children's health

J Schwartz - *Pediatrics*, 2004 - publications.aap.org


... of **air pollution**, as ... **particles** and ozone alone have hundreds of pages summarizing the literature. Rather, I cover the major health effects in **children** that have been linked to **air pollution**, ...

☆ Save  Cite Cited by 959 Related articles All 16 versions

The effects of air pollution on the health of children

I Buka, S Koranteng... - *Paediatrics & child* ..., 2006 - academic.oup.com

... Other **air pollutants** ... the health effects of criteria **air pollutants**, there are many other toxic **air pollutants** regularly released into the **air** that have the potential to harm **children** (50). Studies ...

☆ Save  Cite Cited by 177 Related articles All 6 versions

[PDF] nih.gov

Accès Univ. Bordeaux

Accès Univ. Bordeaux

[PDF] academia.edu

Accès Univ. Bordeaux

[PDF] teamsofangels.org

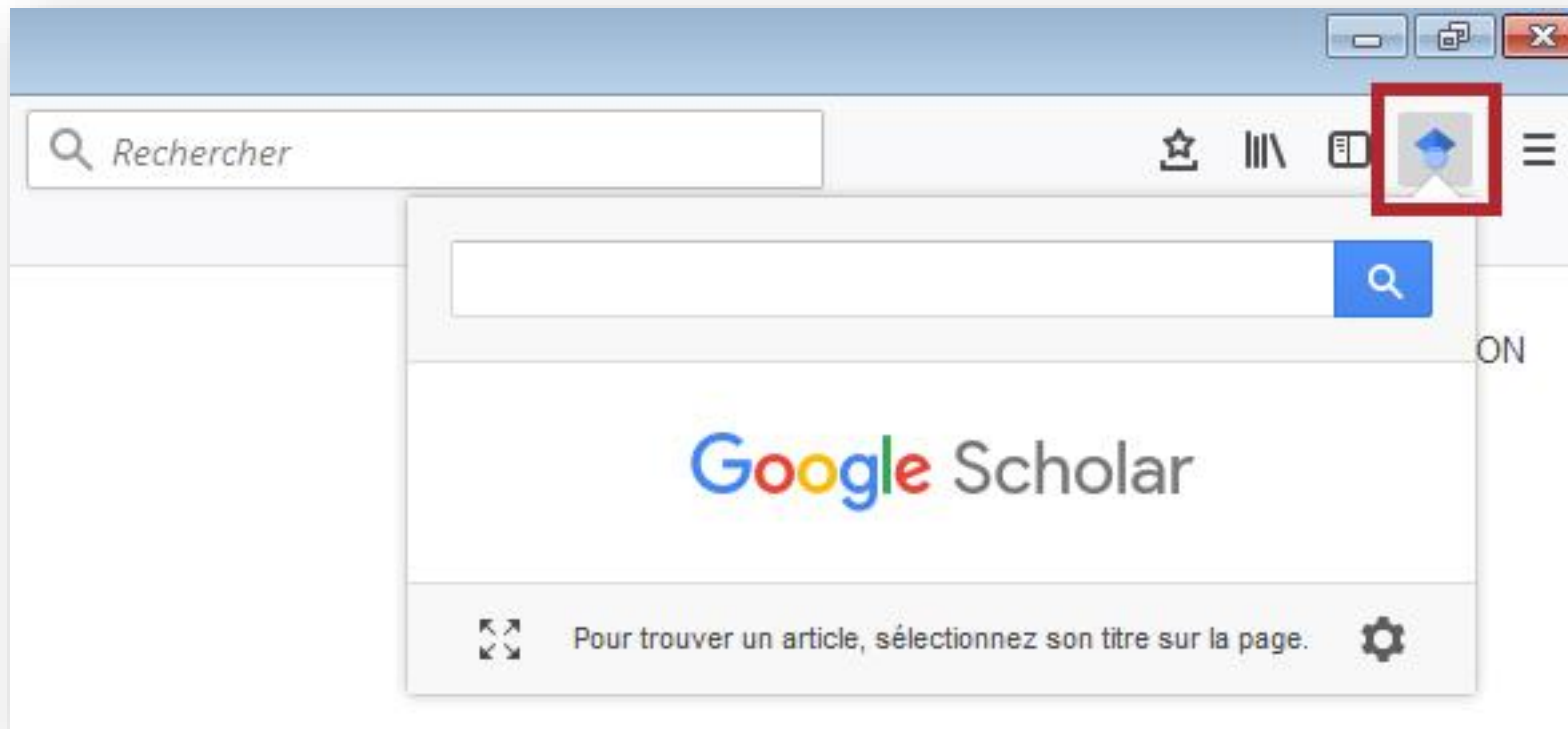
Accès Univ. Bordeaux

[PDF] oup.com

Accès Univ. Bordeaux

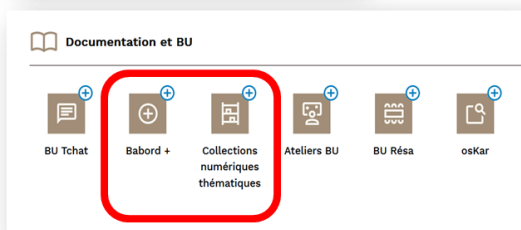
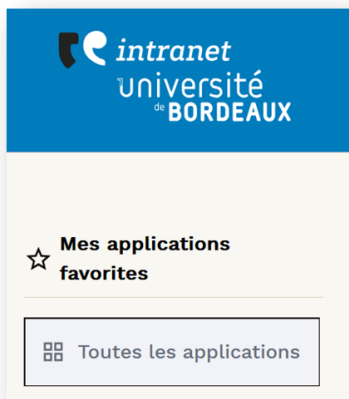
Google Scholar : plugin for the navigator

- This extension adds a browser button for easy access to Google Scholar from any web page.



Information retrieval

Babord + and other services
(BU Tchat, Interlibrary loan)



1. From the Intranet, click on **All applications**
2. Go to the **Documentation and University Libraries** section
3. Find literature via **Babord+** (type the database name then click on the hyperlink) or from **Thematic Digital Collections**



Babord +

- Babord+ locates physical or online documents from the entire academic libraries' network.
- Don't forget to log in your Intranet. This enables your off-campus access to licensed e-resources.
- You'll be able to view your library account.
- You can change the language displayed.

The screenshot displays the Babord+ website interface. At the top, there are navigation links: Journal Search, DOI | PMID Search, Libraries, nous contacter, and collection discovery. A search bar with the placeholder text "Search anything" is prominently featured. To the right, a user menu is visible, showing options like "Langue d'affichage : Français", "Mon compte lecteur", "Mes notices enregistrées", and "Mon historique de recherche".

In the center, a circular hub labeled "Babord+" connects to various resource categories: Articles, Books, Journals, Dissertations, Educational documents, and Datasets. To the right of this hub, a text box explains that Babord+ allows users to see many types of resources from the libraries of the Universities of Bordeaux and provides one-stop searching for books, journals, articles, dissertations, educational documents, DVD, datasets, psychological tests, etc. To complete the search, it suggests checking the database list and the tutorials playlist.

Below the central hub, there are three sections: "WHY SIGN IN", "SEARCH ADVICES", and "BABORD+ TUTORIALS". The "WHY SIGN IN" section lists five reasons to sign in:

- 1 Enable your off-campus access to licensed e-resources.
- 2 Save your searches.
- 3 View your library account.
- 4 Place hold / renew a resource.
- 5 Request digitization of a public-domain document.

Babord + : Advanced search

Too many results ?
Narrow them down by searching
with **'Title'** instead of 'Any field'

You can filter by :

- material type
- language
- publication date

Change the
Boolean operator

Add lines

The screenshot shows the Babord+ search interface. At the top, a 'SEARCH CRITERIA' section is collapsed. Below it, the 'Search Filters' section contains three search criteria lines. The first line is 'Title contains "atmospheric pollution" OR "air pollution" OR particle*'. The second line is 'AND Title contains health OR illness OR disease'. The third line is 'AND Any field contains child* OR kid*'. A red box highlights the 'AND' operator in the second line, with an arrow pointing to the 'Change the Boolean operator' text. Another red box highlights the 'Title' field in the second line, with an arrow pointing to the 'Too many results ?' text. A third red box highlights the search criteria lines, with an arrow pointing to the 'Add lines' text. A fourth red box highlights the search criteria lines, with an arrow pointing to the '1 concept per line, followed by OR and synonyms' text. On the right side, a 'Filter by' section is visible, with arrows pointing to the 'You can filter by :' text. This section includes filters for 'Material Type' (All items), 'Language' (Any language), 'Publication Date' (Any year), and 'Any year'.

SEARCH CRITERIA

Search Filters

Title contains "atmospheric pollution" OR "air pollution" OR particle*

AND Title contains health OR illness OR disease

AND Any field contains child* OR kid*

+ Add a new line Clear

1 concept per line, followed by OR and synonyms

Material Type
All items
Language
Any language
Publication Date
Any year

→ Title contains "atmospheric pollution" OR "air pollution" OR particle*
AND Title contains health OR illness OR disease AND Any field contains child* OR kid* Search

Babord + : Filters

Use filters to narrow the results of your search :

Click on “**Remember all filters**” to save them for your next search




Institution :
Université de Bordeaux

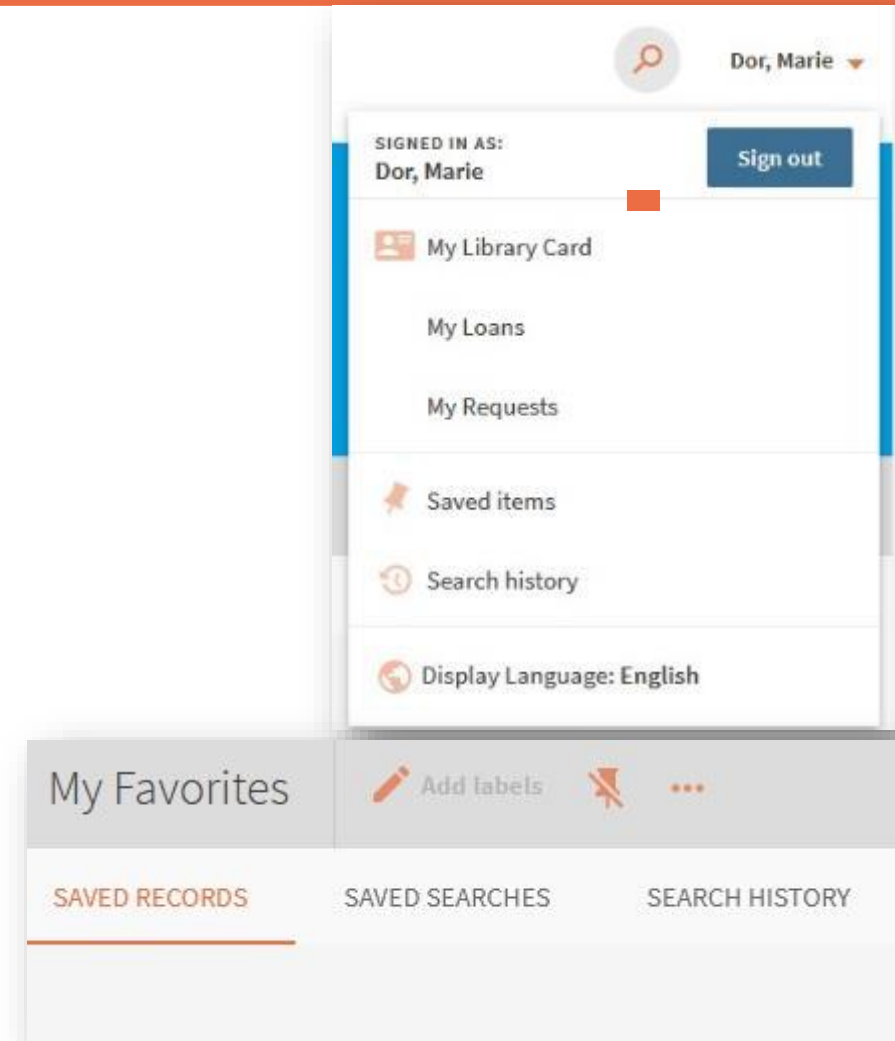
The screenshot displays the Babord+ search interface. On the left, the 'Active filters' sidebar is visible, with 'Remember all filters' highlighted by a red box and an arrow pointing from the instruction box. Below it, 'Institution' is also highlighted by a red box and an arrow pointing from the 'Institution : Université de Bordeaux' box. The main search results area shows three items:

- Item 1:** ARTICLE titled 'Children exposure to atmospheric particles in indoor of Lisbon primary schools' by Almeida, Susana Marta; Canha, Nuno; Silva, Ana; Freitas, Maria do Carmo; Pegas, Priscilla; Alves, Célia; Evtugina, Margarita; Pio, Casimiro Adrião. It includes a quote: '.... Since children spend on average 7-11 h per weekday at school, the IAQ in classrooms is expected to play a key role in the assessment of the effects of their personal exposure to air pollution...'. It is marked as 'PEER REVIEWED' and 'Full text available'.
- Item 2:** BOOK titled 'Valutazione economica degli effetti sanitari dell'inquinamento atmosferico : la metodologia dell'EEA' by a cura di Giorgio Assennato. Published in 2015. It is marked as 'Online access'.
- Item 3:** ARTICLE titled 'Associations between long-term exposure to low-level air pollution and risk of chronic kidney disease—findings from the Malmö Diet and Cancer cohort' by Xu, Yiyi; Andersson, Eva M; Krage Carlsen, Hanne; Molnár, Peter; Gustafsson, Susanna; Johannesson, Sandra; Oudin, Anna; Engström, Gunnar; Christensson, Anders; Stockfelt, Leo. Published in Environment international, 2022-02, Vol.160, p.107085-107085, Article 107085. It includes a quote: '.... Associations between air pollution and chronic kidney disease (CKD) have been reported, but studies at low exposure levels and relevant exposure time windows are still warranted...'. It is marked as 'PEER REVIEWED', 'OPEN ACCESS', and 'Full text available'.

Babord + : Reader account

Your Babord+ reader account (top right corner) is available upon signing in. You can then :

- See your search history 
- Check your loans
- Place a hold (My Requests)
- Renew a document (My Loans)
- Pin a result  and create labels to organize your results (Saved records)
- Set up alerts (email) 
- Request digitization of a public-domain document
- Export your results with Zotero





- Our librarians are here to help you.
- We offer an online chat service from Monday-Friday, 9am-5pm.
- You can find BU Tchat on your ENT under the tab 'Bibliothèque'.

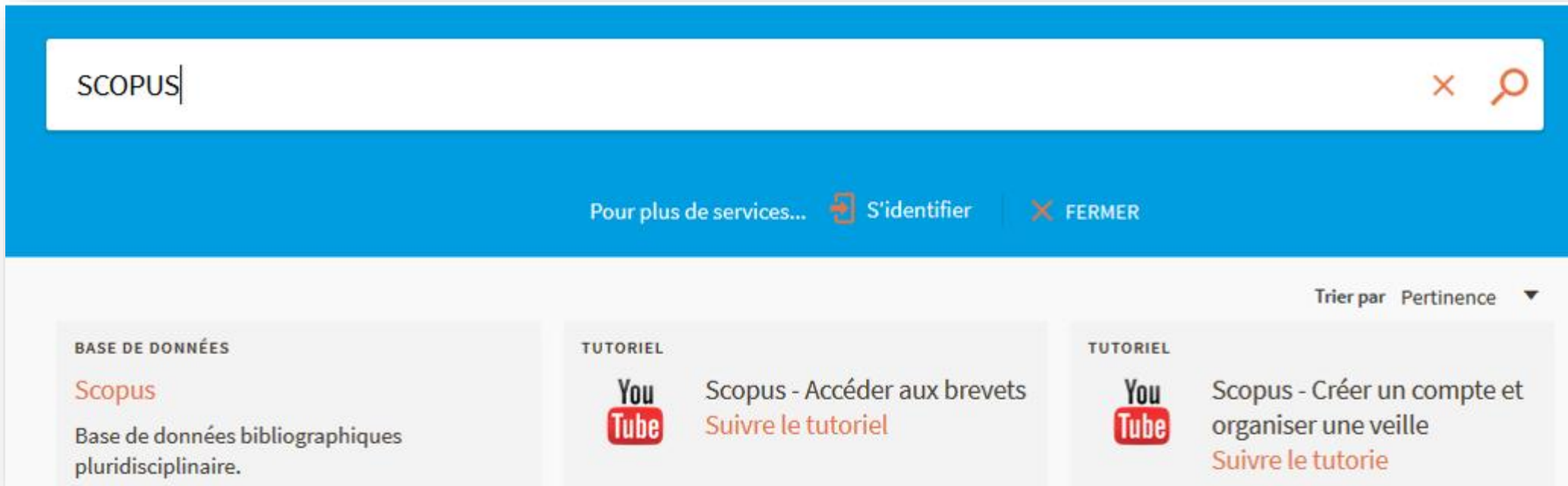
Our chat service can be accessed by clicking on the chat icon (bottom right side of your screen.)



The BU Tchat pop up window will also

Access to databases from Babord+

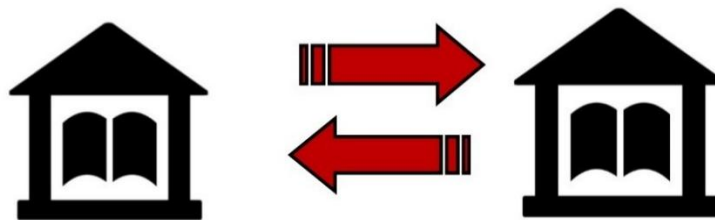
You can find SCOPUS (and any other databases subscribed by Bordeaux University) by typing its name in the search bar of Babord+. Don't forget to log in your Intranet, it will enable your off-campus access to licensed e-resources



PEB – Interlibrary loan

- The interlibrary loan service provides access to library materials that are not available within Bordeaux University's collections.
- It is a useful, free service for researchers and students to request items from other academic institutions in France. There is a fee, however, for requesting printed documents from abroad.
- Complete this online form with the document reference and your contact details (name, student ID card number, email and phone number) :
<http://busec2.u-bordeaux.fr/peb/>

InterLibrary Loan



Information retrieval

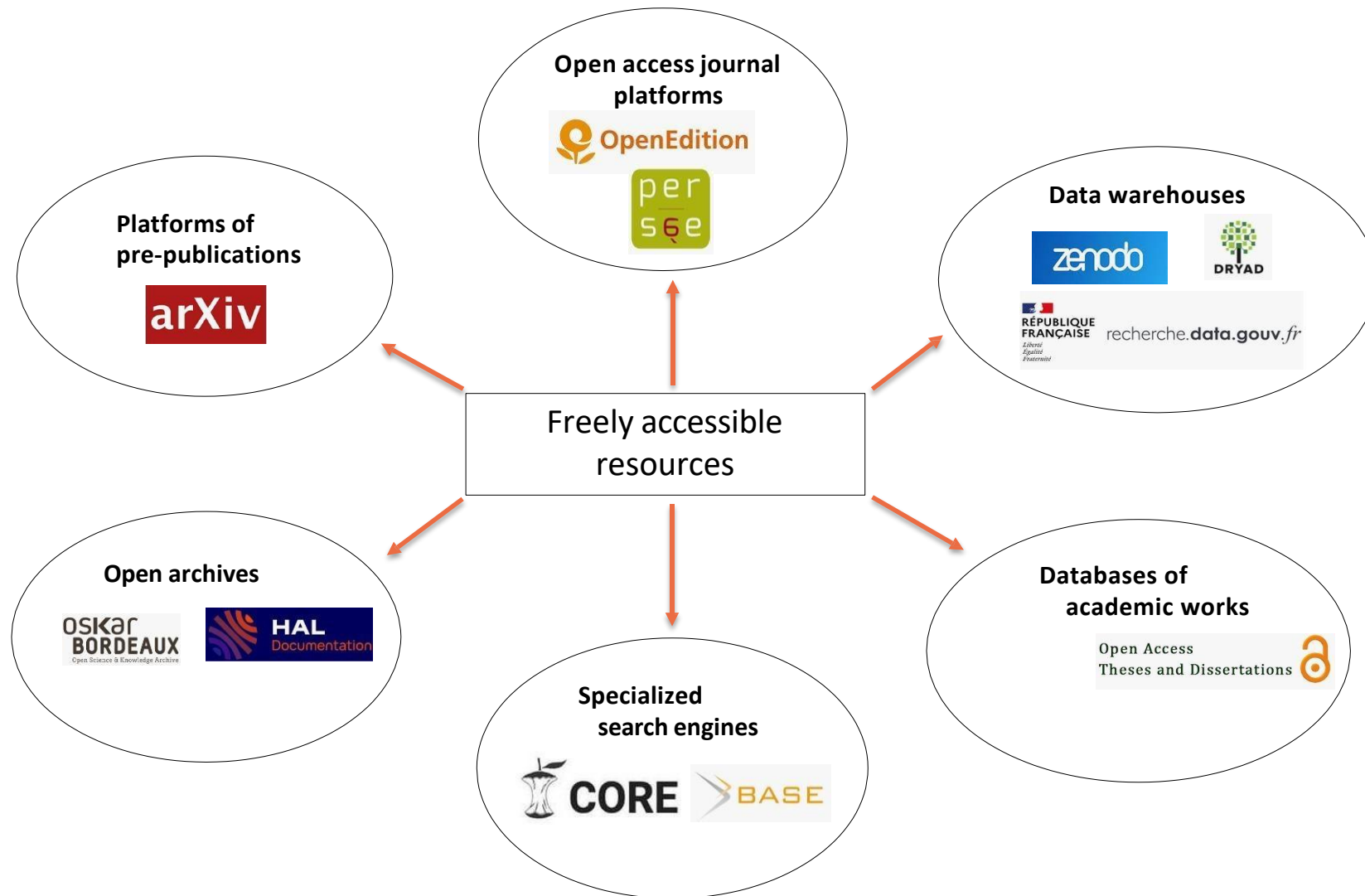
Search in open access platforms and databases

What is openness?

→ “Open means **anyone** can **freely access, use, modify, and share** for **any purpose** (subject, at most, to requirements that preserve provenance and openness).”
(Open Definition)



Using available open resources



(Source: *Passport to Open Science* - 2022)

Hacking scientific papers : Sci-Hub



- **Sci-Hub** is a shadow library website that provides free access to millions of research papers, without regard to copyright, by bypassing publishers' paywalls in various ways.
- Sci-Hub was founded in Kazakhstan by Alexandra Elbakyan in 2011
- The site is extensively used worldwide. In September 2019, the site's operator(s) said that it served approximately 400,000 requests per day.
- Sci-Hub has been estimated to contain 95% of all scholarly publications with issued DOI numbers. Sci-Hub reported on 15 July 2022 that its collection comprises 88,343,822 files.
- Sci-Hub and Elbakyan were sued twice for copyright infringement in the United States, in 2015 and 2017, and lost both cases by default, leading to loss of some of its Internet domain names. The site has cycled through different domain names since then.
- **Researchers and PHD students should be aware that accessing such websites is illegal, as it hosts stolen intellectual property.**

Academic Social Networks

- **Academic Social Networks** (ASNs) are similar to social networking sites, but designed for the academic community. These online platforms allow you to develop a profile and connect with other researchers, while also allowing you to share academic related content. These tools are typically free to use. The most attractive feature of these sites is their offer of a user-friendly way to present your research articles and other scholarly outputs to your colleagues and scholarly communities worldwide.
- However, if you are looking to preserve and make your scholarly output discoverable in a trusted, non-commercial space, an institutional or subject open archive repository may be a better solution. **HAL** is a free and secure research repository created by the CNRS to disseminate and preserve the scholarly record of academic research in France. (Oskar in Bordeaux)

Academic Social Networks



R^G **researchGate**

- ResearchGate is a commercial social networking site for researchers. A researcher is able to create a profile, share papers, engage in discussion, and find collaborators. Some metrics exclusive to this platform are also available.
- • To create a profile: <https://www.researchgate.net>



A **cademia**

- Academic.edu is a commercial social networking site for researchers. A researcher can create a profile, upload their work, and select areas of interest to find networks of users with similar interests. Analytics related to engagement with uploaded research is available.
- • To create a profile: <https://www.academia.edu>

Using open available resources



- The open science movement's aims are to facilitate access to scientific content and encourage its reuse.
- Often we speak of **open-access resources**: thanks to their author and/or publisher, these resources can be freely accessed without researchers or their institutions having to pay.
- **Open access journal platforms**: Open access journals can have diverse business and editorial models : exemples.
 - › **OpenEdition Journals** offers 450 online publications in the humanities and social sciences.
 - › **Persée** digitises and disseminates entire collections of journals retrospectively.

Using open available resources

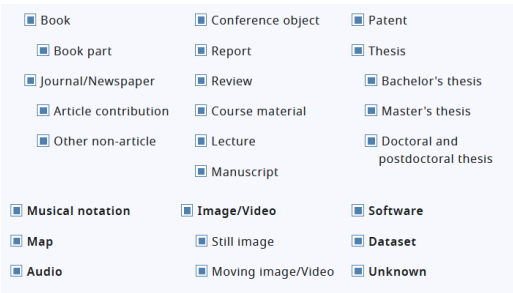
→ **Specialized search engines:** These aggregate open access content to make them easier to discover.



- › **Core** (core.ac.uk) is a search engine specialising in open access academic publications (books, articles, theses, etc.).



- › **BASE** is one of the world's most voluminous search engines especially for academic web resources. BASE provides more than 300 million documents from more than 10,000 [content providers](#). You can access the full texts of about 60% of the indexed documents for free (Open Access). BASE is operated by Bielefeld University Library.



- › **Click & Read** Developed by the CNRS to facilitate access to documents it can be installed as a browser extension and offers free access versions of all the articles available in its database.

Using open available resources

→ Databases for theses or academic works:

These databases aggregate the digital thesis collections of universities and research centres.



→ Visit

- › **Open Access Thesis and Dissertation (OATD).** OATD.org aims to be the best possible resource for finding open access graduate theses and dissertations published around the world. Metadata (information about the theses) comes from over 1100 colleges, universities, and research institutions. OATD currently indexes 6,511,367 theses and dissertations.

→ Open archives: These may be institutional or thematic, and scientific productions are deposited in the archives by researchers themselves for free consultation.

- › **HAL**, the multidisciplinary archive for French research.
- › **Oskar Bordeaux** : is the institutional open repository of the University of Bordeaux and its partners.

Thank you