

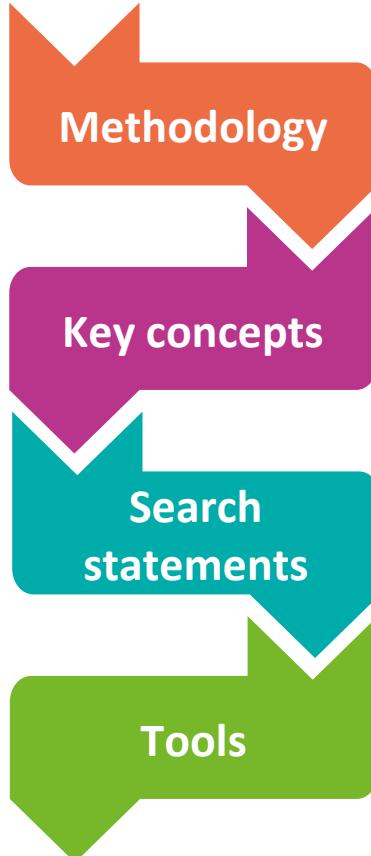
Direction de la documentation

Effective
information retrieval /
literature searches

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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

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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.

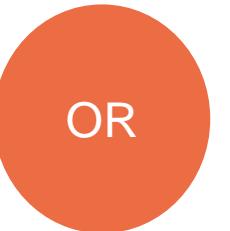
Boolean operators

pollution  health

Documents dealing
exclusively with pollution
and health

AND
= INTERSECTION

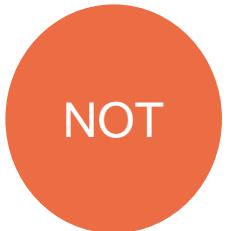
To find documents that only
respond to the search
words

child  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  asthma

Documents dealing with
health but **excluding**
asthma

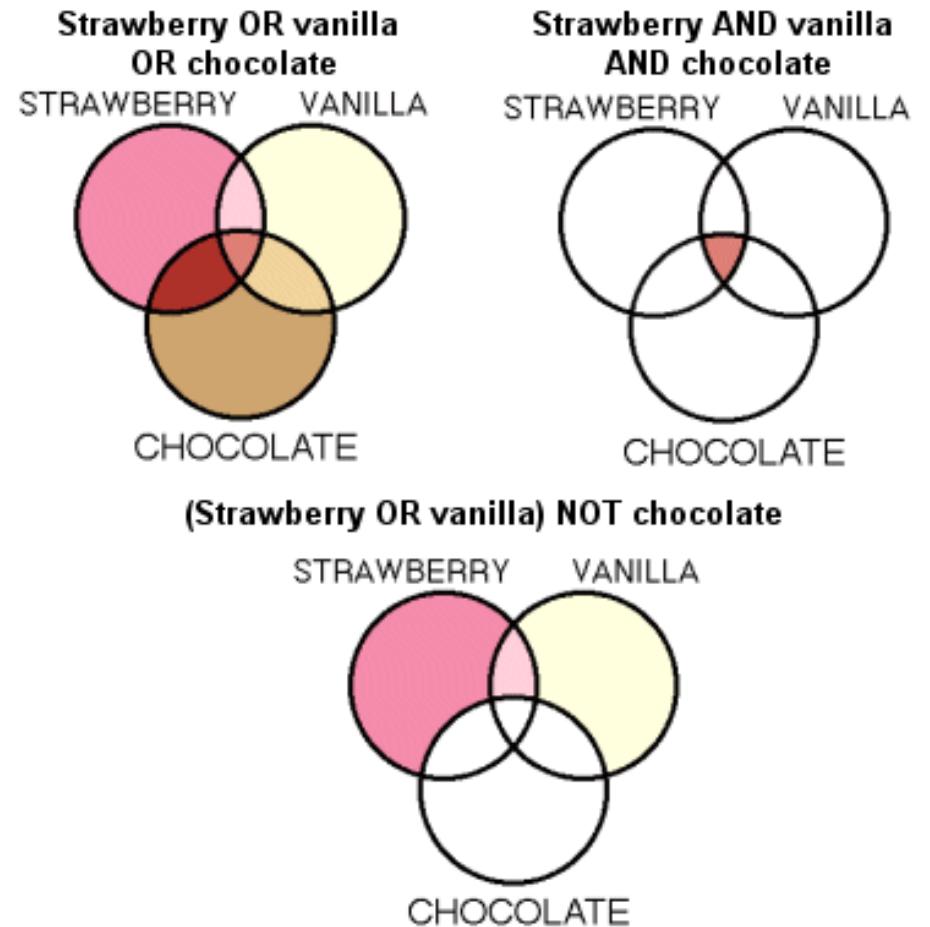
NOT
= EXCLUSION

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.

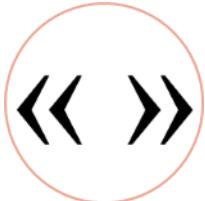


Source Image : The story of mathematics -
http://www.storyofmathematics.com/19th_boole.html

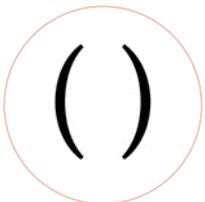
Search tips



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	<p>Check the correct combination of keywords with Boolean operators</p> <p>Add a concept</p> <p>Use rare, discriminating and specific keywords / terms commonly used by the subject experts</p>	<p>Check the correct combination of keywords with Boolean operators</p> <p>Remove one or more of the concepts in your search</p> <p>Add synonyms to your search keywords</p> <p>Use more generic keywords / broaden your search</p>
Choosing search tools	<p>Choose a search tool with narrower disciplinary coverage</p> <p>Choose a search tool with a coverage that fits your topic</p>	<p>Choose a search tool with broader disciplinary coverage</p> <p>Choose a search tool with coverage that fits your topic</p>
Using search tools	<p>Check that you are using the correct syntax and query language</p> <p>Specify query criteria</p>	<p>Check that you are using the correct syntax and query language</p> <p>Expand query criteria</p>

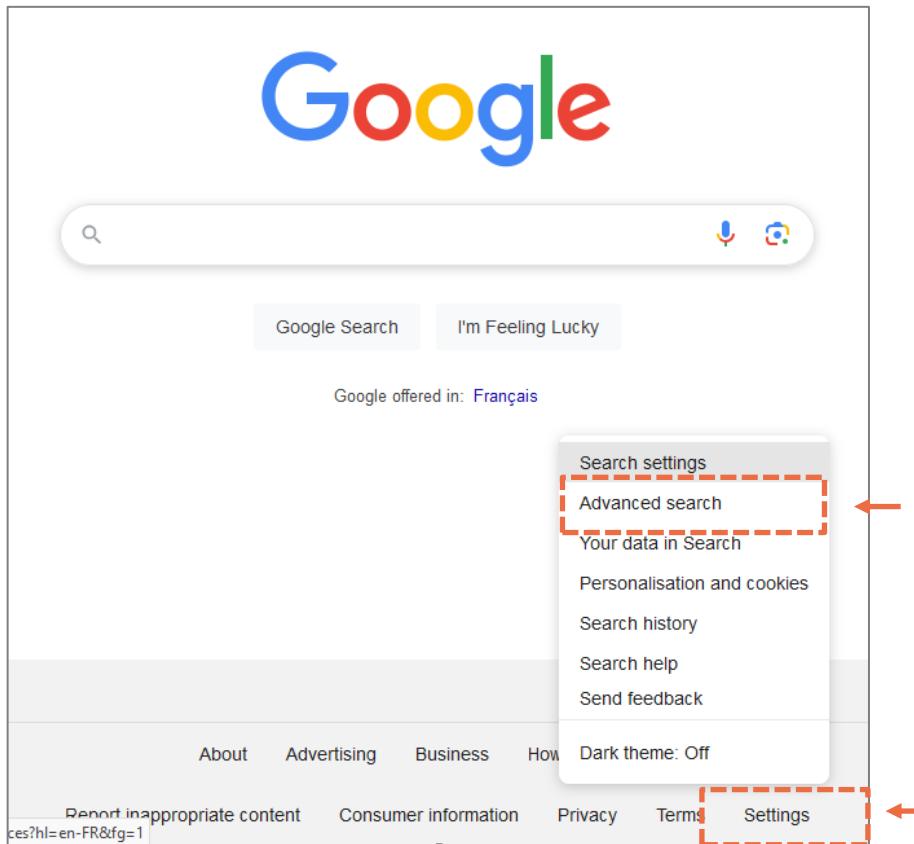
Google and Google Scholar

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Google : advanced search for better results

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



Google : advanced search for better results

Google

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

region: any region

last update: anytime

site or domain: who.int

terms appearing: anywhere in the page

file type: Adobe Acrobat PDF (.pdf)

usage rights: not filtered by licence

Find pages in the language that you select.

Find pages published in a particular region.

Find pages updated within the time that you specify.

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

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

Find pages in the format that you prefer.

Find pages that you are free to use yourself.

Advanced Search

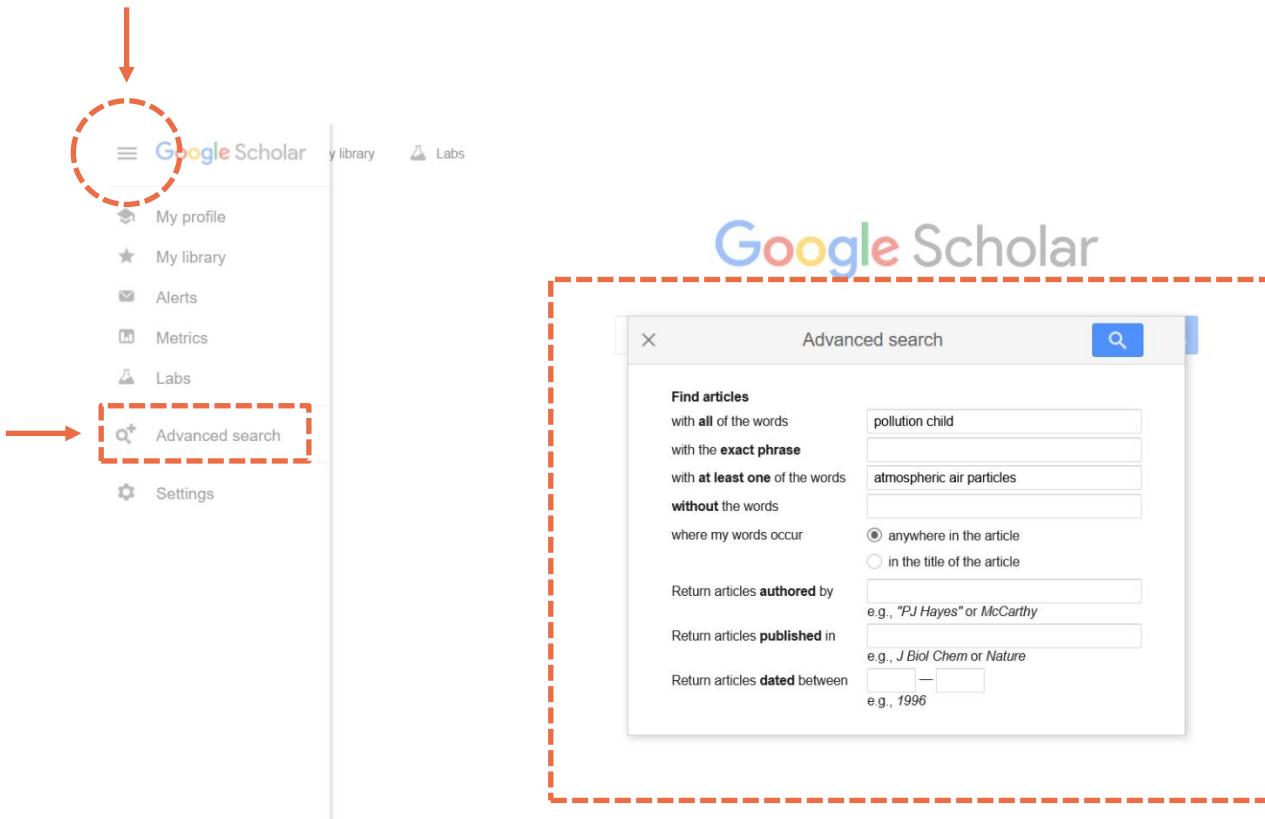
2. Google Scholar

- 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).

The logo for Google Scholar, featuring the word "Google" in its signature multi-colored font (blue, red, yellow, blue, green, red) followed by the word "Scholar" in a dark gray sans-serif font.

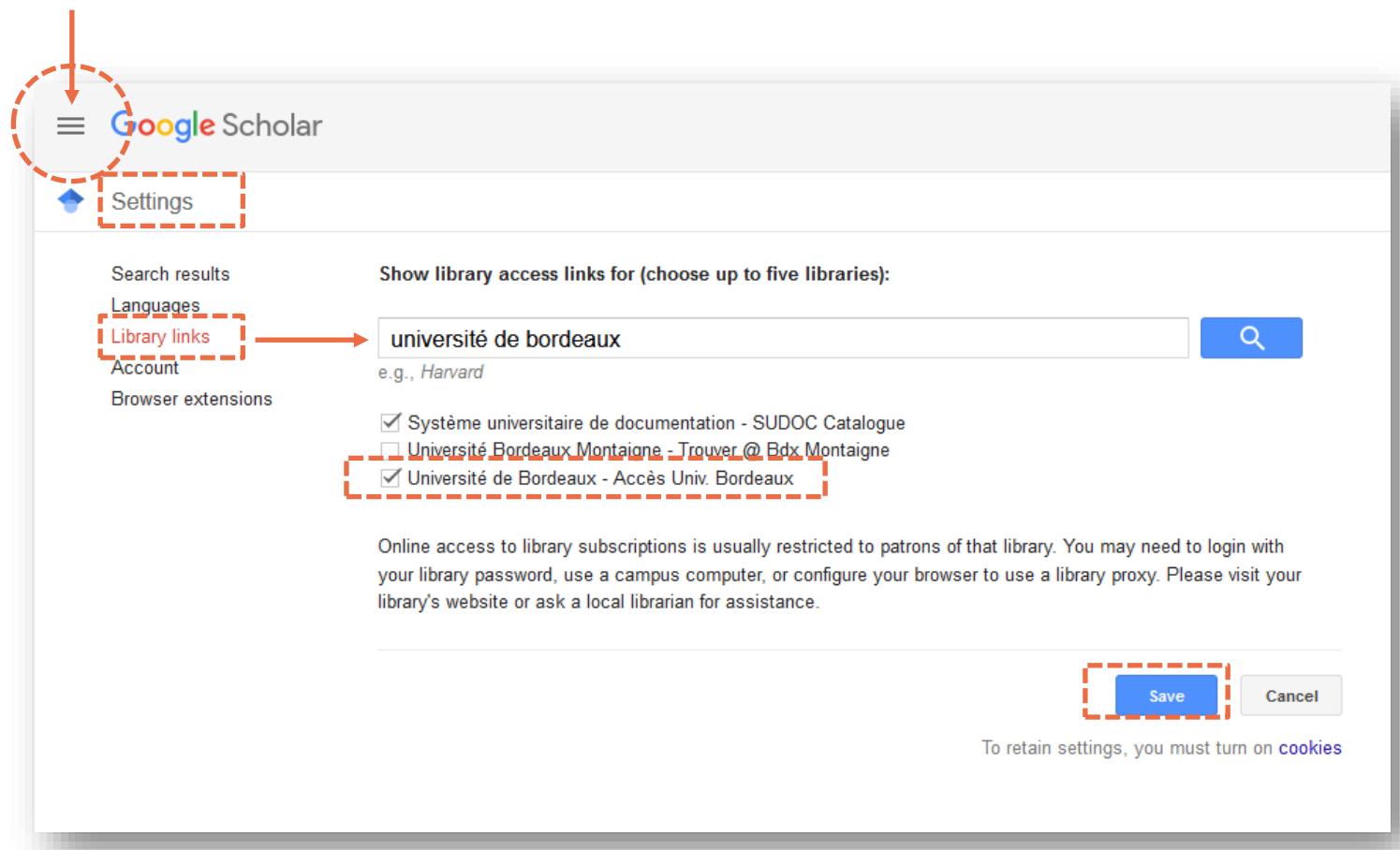
Google Scholar : advanced search for better results

→ 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.



Google Scholar

≡ Google Scholar

pollution child atmospheric OR air OR particles

Articles About 2 380 000 results (0,09 sec)

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

Since 2025 ... 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 ...

Since 2024

Since 2021

Custom range...

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

Sort by relevance DV Bates - Environmental health perspectives, 1995 - pmc.ncbi.nlm.nih.gov

Sort by date DV Bates - Environmental health perspectives, 1995 - pmc.ncbi.nlm.nih.gov

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

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

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

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

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

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 59 Cite Cited by 281 Related articles All 10 versions

Health effects of ambient air pollution in children

S Salvi - Pediatric 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 99 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 99 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 99 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 99 Cite Cited by 177 Related articles All 6 versions

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Accès Univ. Bordeaux

[PDF] academia.edu

Accès Univ. Bordeaux

[PDF] teamsofangels.org

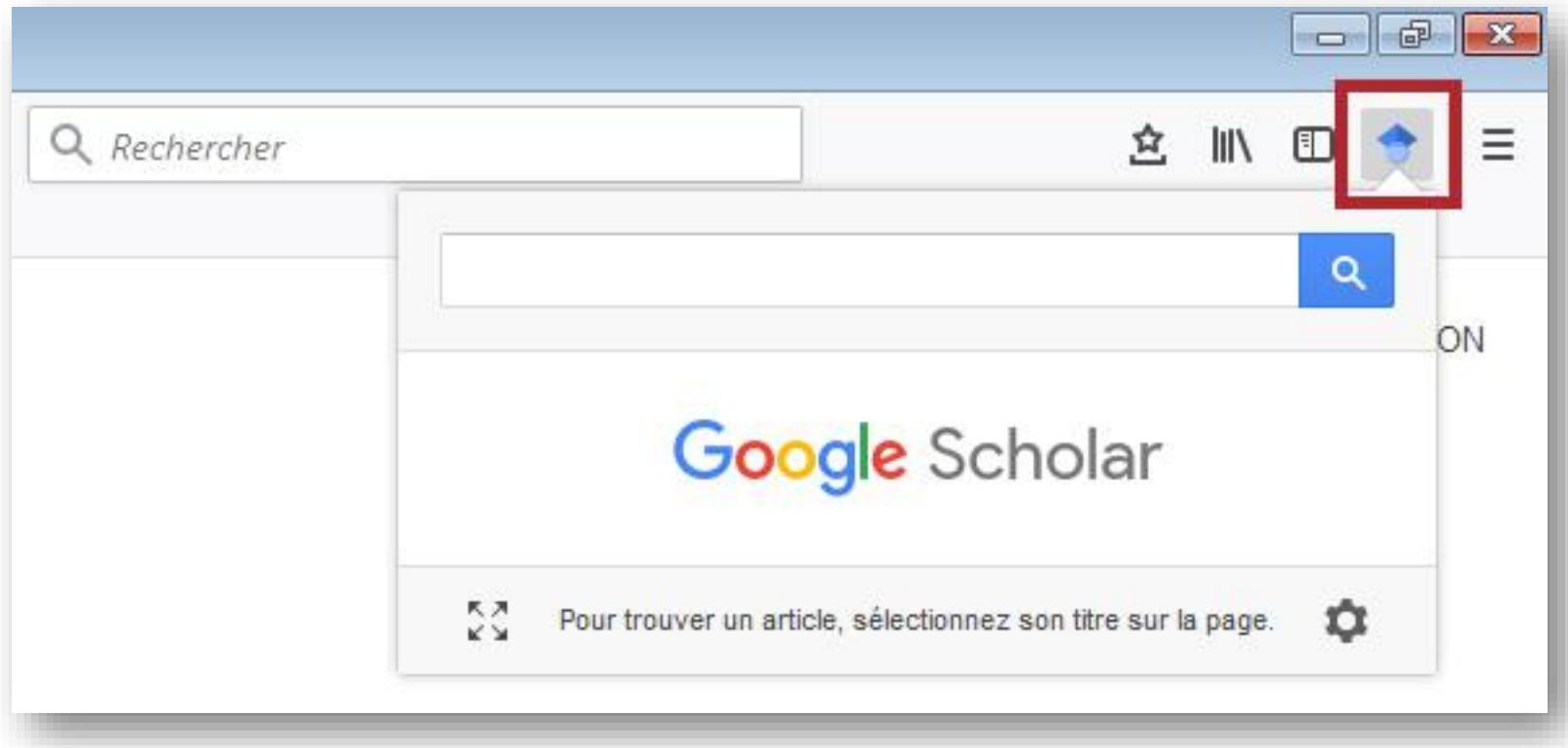
Accès Univ. Bordeaux

[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.

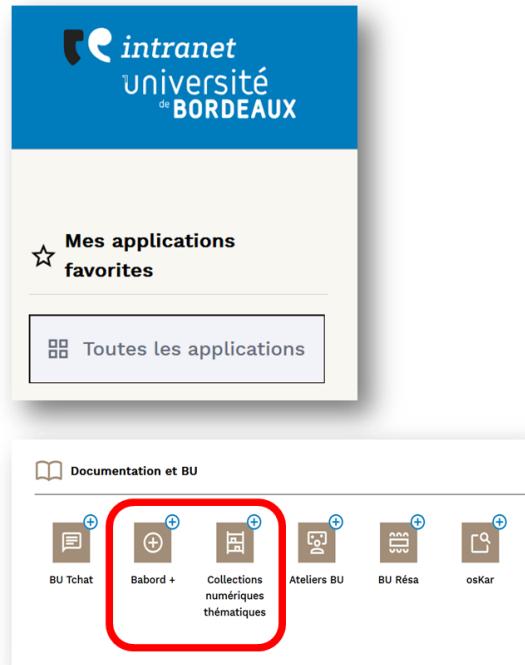


Information retrieval

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

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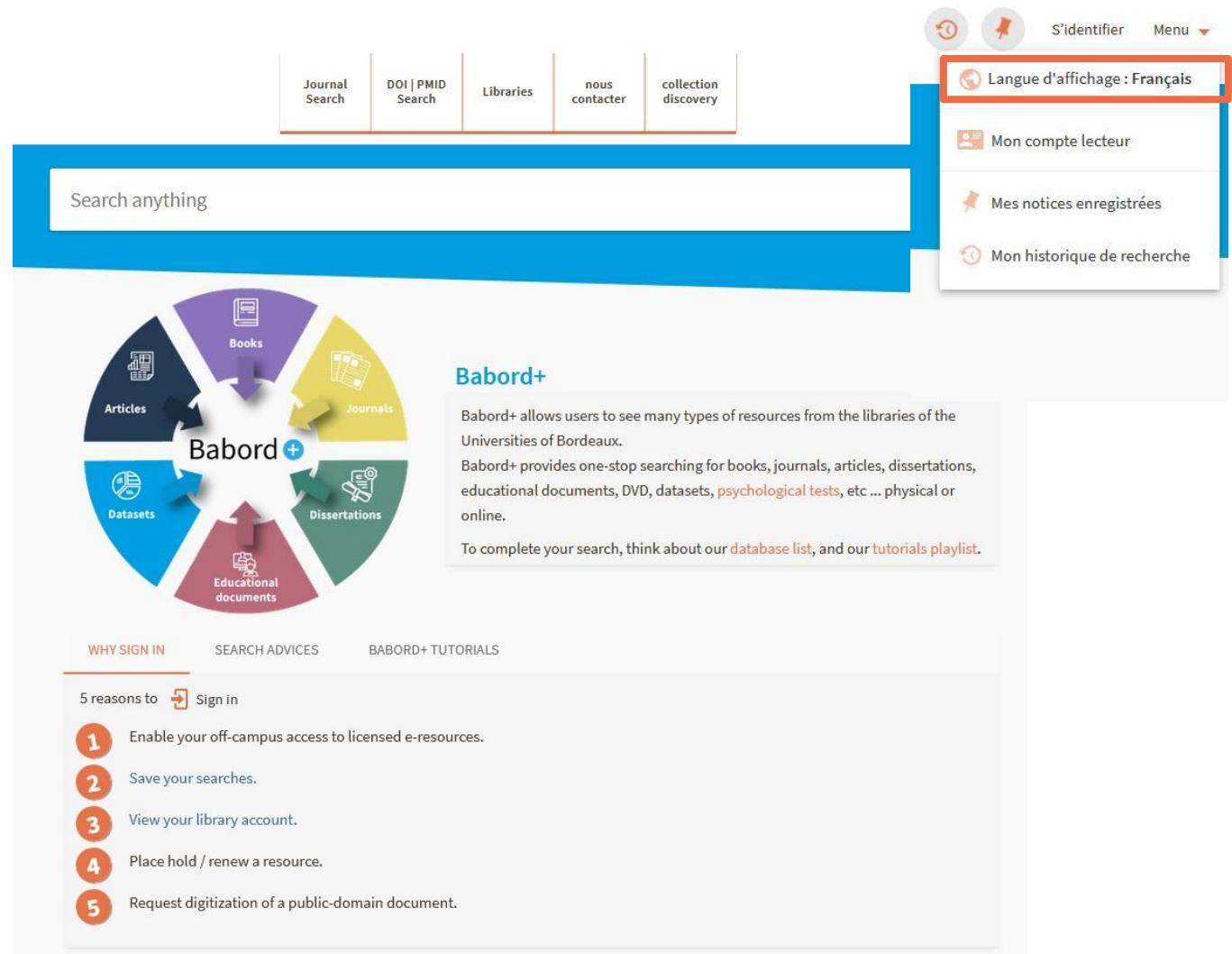


1. From the Intranet, click on **All applications**
2. Go to the **Documentation and University Libraries** section
3. Find literature via **Babord+** (type the database name then click on the hyperlink) or from **Thematic Digital Collections**



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.



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

1 concept per line, followed
by OR and synonyms

The screenshot shows the Babord + search interface with the following details:

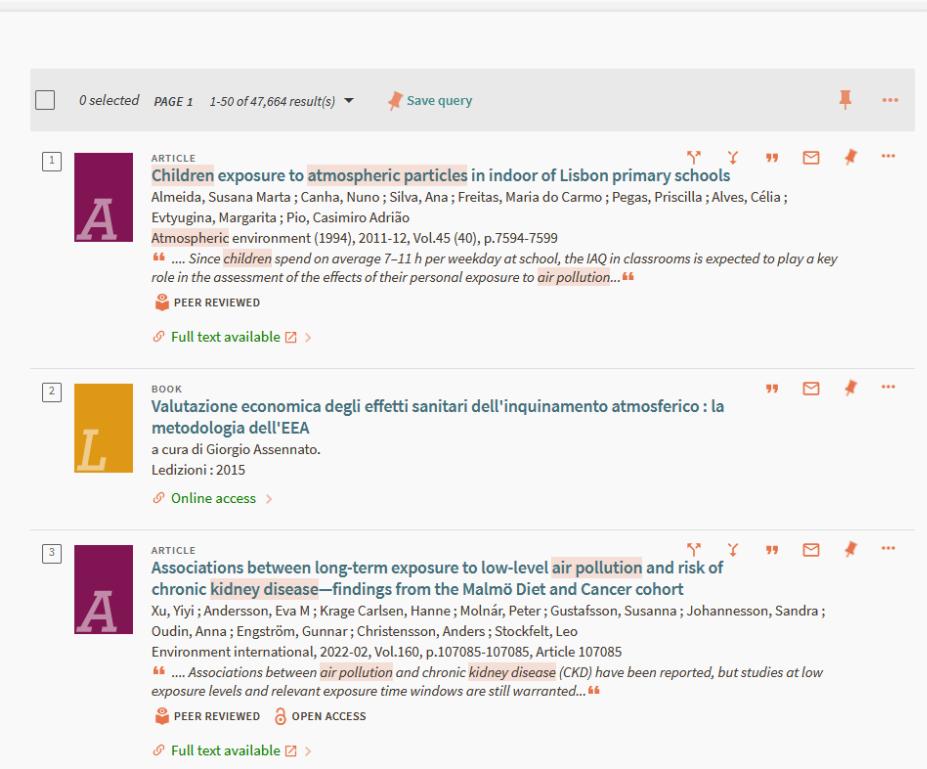
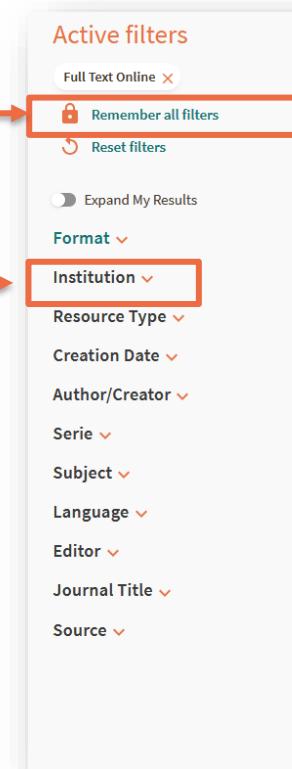
- SEARCH CRITERIA** section:
 - Search Filters: Title contains "atmospheric pollution" OR "air pollution" OR particle*
 - Boolean operators: AND, Title, AND, Any field, AND
 - Terms: health OR illness OR disease, child* OR kid*
- Material Type** filter: All items
- Language** filter: Any language
- Publication Date** filter: Any year
- Buttons**: + Add a new line, Clear, Search

Babord + : Filters

Use filters to narrow the results of your search :

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

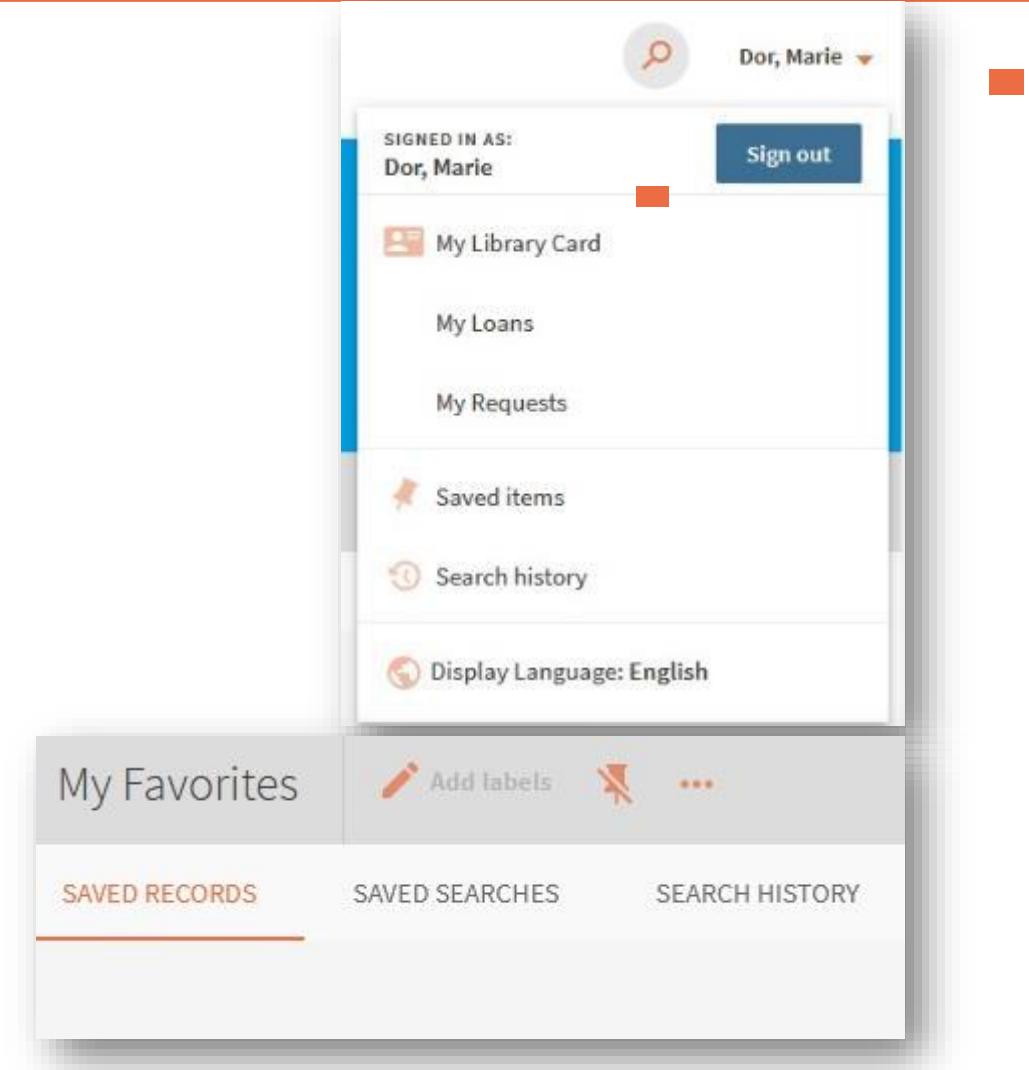
Institution :
Université de Bordeaux



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'.

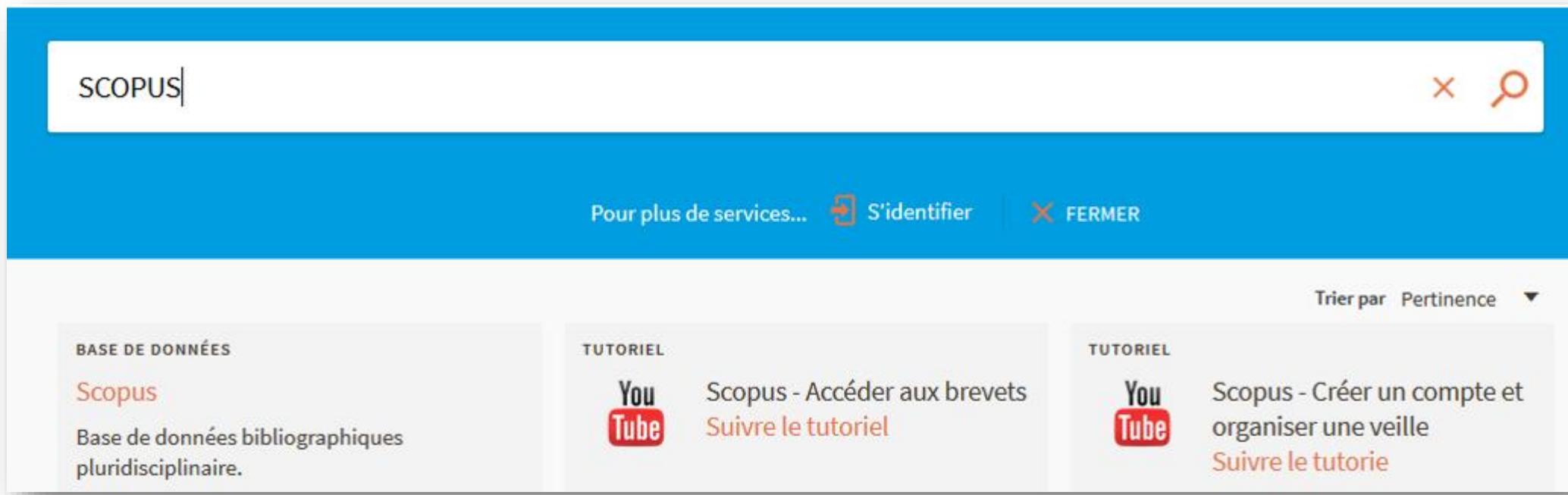
Our chat service can be accessed by clicking on the chat icon (bottom right side of your screen.)



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

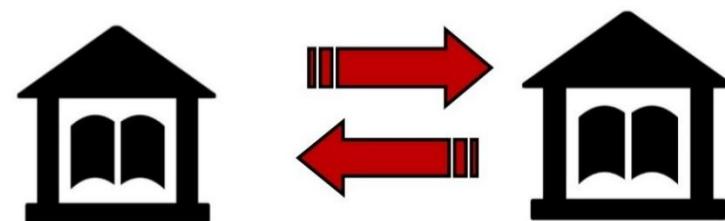


The screenshot shows the Babord+ search interface. In the search bar at the top, the word "SCOPUS" is typed. To the right of the search bar are a red "X" button and a magnifying glass icon. Below the search bar, there are buttons for "Pour plus de services..." (For more services...), "S'identifier" (Log in), and "FERMER" (Close). The main content area displays search results for "Scopus". On the left, under "BASE DE DONNÉES", there is a card for "Scopus" described as a "Base de données bibliographiques pluridisciplinaire". In the center, there are two "TUTORIEL" (Tutorial) cards, both featuring a YouTube icon. The first tutorial is titled "Scopus - Accéder aux brevets" with a "Suivre le tutoriel" (Follow the tutorial) link. The second tutorial is titled "Scopus - Créer un compte et organiser une veille" with a "Suivre le tutorie" (Follow the tutorie) link. The results are sorted by "Pertinence" (Relevance).



- 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

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What is openness?

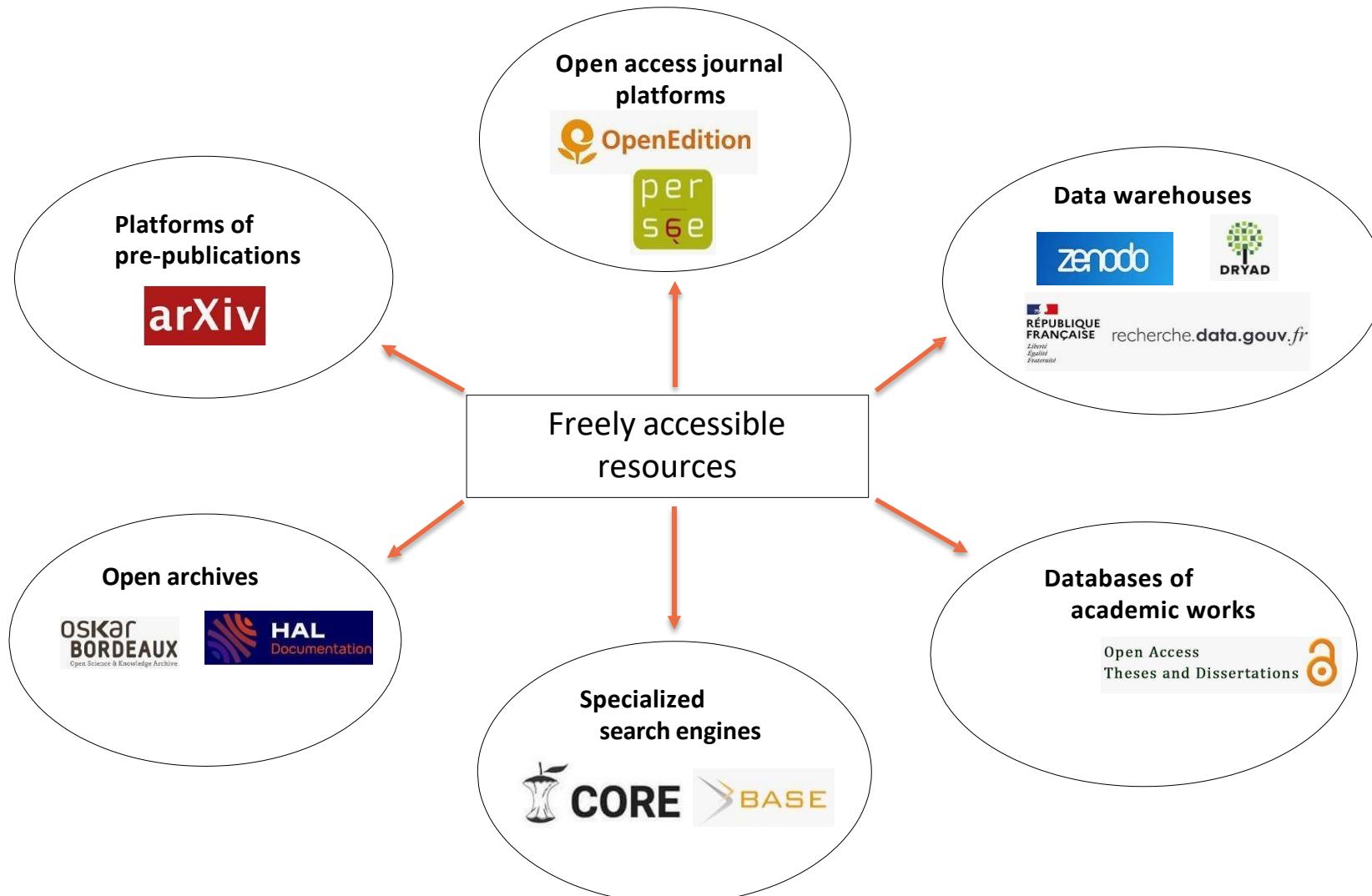
→ “Open means **anyone** can **freely access, use, modify, and share** for **any purpose**

(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



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>



Academia

- 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.

<input type="checkbox"/> Book	<input type="checkbox"/> Conference object	<input type="checkbox"/> Patent
<input type="checkbox"/> Book part	<input type="checkbox"/> Report	<input type="checkbox"/> Thesis
<input type="checkbox"/> Journal/Newspaper	<input type="checkbox"/> Review	<input type="checkbox"/> Bachelor's thesis
<input type="checkbox"/> Article contribution	<input type="checkbox"/> Course material	<input type="checkbox"/> Master's thesis
<input type="checkbox"/> Other non-article	<input type="checkbox"/> Lecture	<input type="checkbox"/> Doctoral and postdoctoral thesis
	<input type="checkbox"/> Manuscript	
<input type="checkbox"/> Musical notation	<input type="checkbox"/> Image/Video	<input type="checkbox"/> Software
<input type="checkbox"/> Map	<input type="checkbox"/> Still image	<input type="checkbox"/> Dataset
<input type="checkbox"/> Audio	<input type="checkbox"/> Moving image/Video	<input type="checkbox"/> Unknown



› **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