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جستجوی پیشرفته منابع اطلاعاتی

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استادیار کتابداری و اطلاع رسانی پزشکی

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سرفصل ها

- اصول جستجو پیشرفته در پایگاه های اطلاعاتی
- جستجوی پیشرفته در PubMed
- جستجوی پیشرفته در Scopus
- جستجوی پیشرفته در Web of Science

Some Reasons for Searching the Medical Literature

- To answer a specific patient case-related question (practice)
- To learn more about a medical topic (education)
- To determine current best practice (guideline)

To give the best possible care to patients using Evidence-Based Medicine (EBM)

Techniques for Improve Searching

1. Ability to structure and parse a question
2. Knowledge of basic database structure
3. Use of Boolean Logic
4. Use of Field Searching
5. Use of Controlled Vocabulary
6. Specialty techniques (truncation, etc.)
7. Consistent step-by-step procedure

Searching a Database

Different search interfaces do the same things in slightly different ways

Good search interfaces should provide

- Ability to search for a specific item
- Ability to search for related items to a known item
- Ability to search in a specific field or fields
- Ability to combine search terms using Boolean Logic
- Ability to retrieve search results in a useful way

Boolean Logic

A British mathematician named George Boole (1815-1864) developed an algebraic system of logic that is now widely used in computer and electronic systems including database searching.

While Boole's algebraic system can be complex, a very simple form of Boolean Logic is used for searching most bibliographic databases.

Boolean Operators

Standard Boolean Logic for database searching uses 3 relationships among search terms.

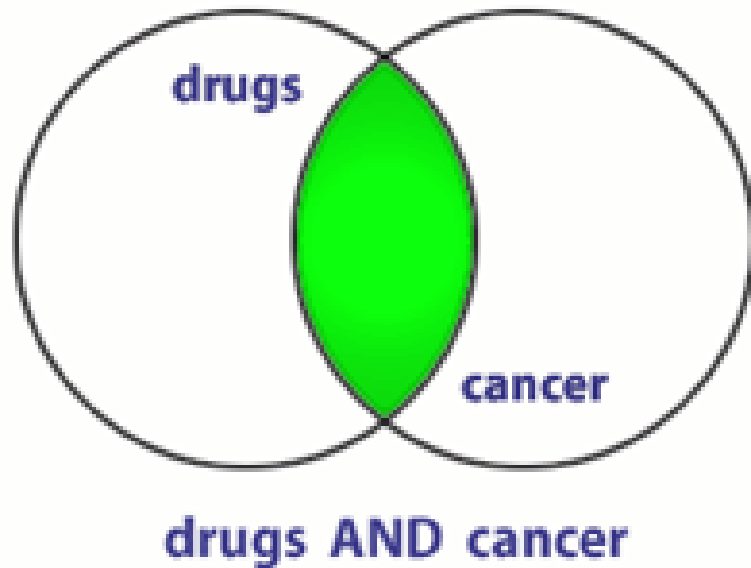
AND

OR

NOT

It is both simple and powerful.

AND

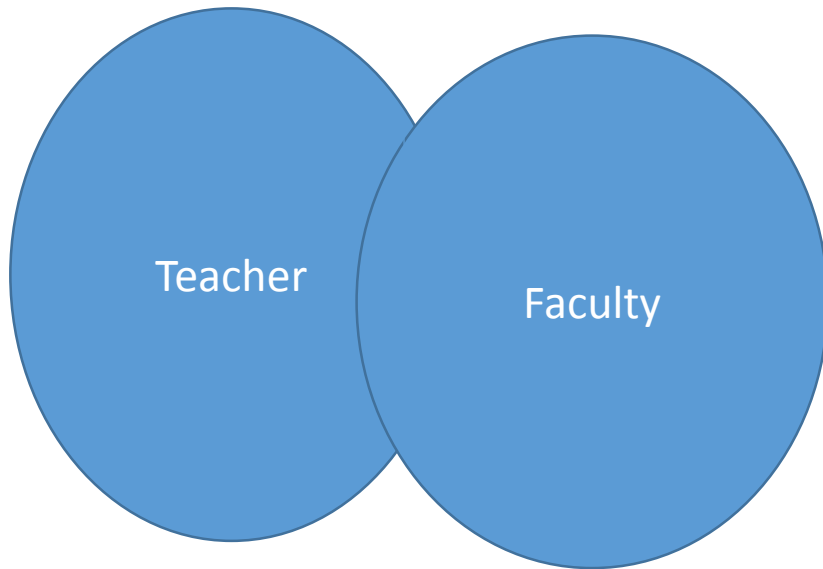


BOTH terms included in any results.

If a record has only one of the two terms, it will not be retrieved.

If the record has neither term, it will not be retrieved.

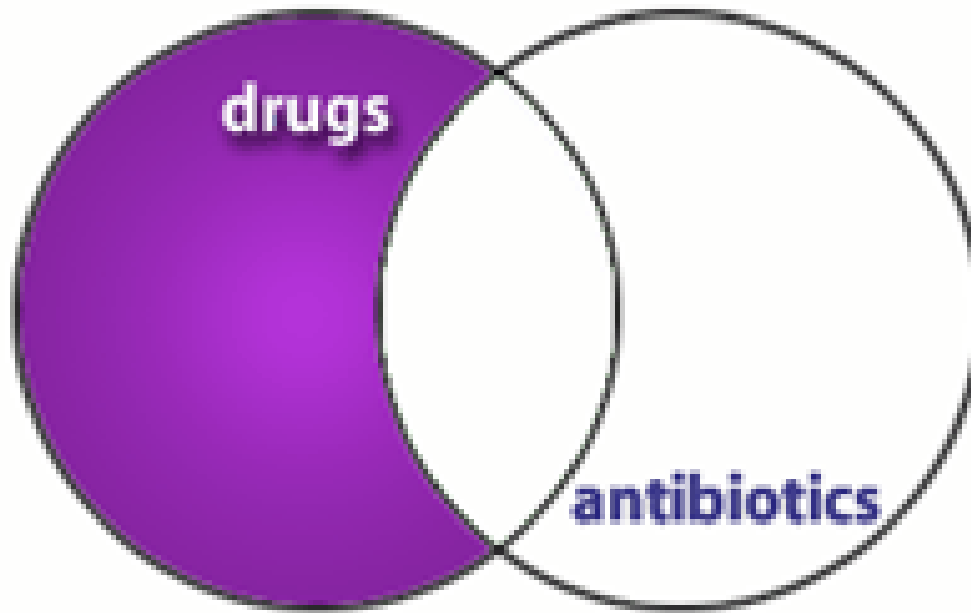
OR



Only one (NOT both) of the terms are in the results

'OR' will retrieve the record if both are included.

NOT



drugs NOT antibiotics

Excludes any results
containing the term

Records containing both will
not be retrieved.

Using OR

“OR” groupings contain terms for the same idea/concept and are usually put in parenthesis

(term OR term OR term)

where all terms are difference ways of representing the same concept

(faculty OR teachers OR professors)

(students OR learners OR pupils)

Using AND

“AND” groupings contain terms for different ideas/concepts and can combine OR groupings

Term AND (Term OR Term) where each represents a different concept

heart attack AND smoking

Diabetes AND exercise

Cancer AND (treatment OR therapy)

Using NOT

“NOT” statements are usually put last and can contain an “OR” grouping; they are often used to get rid of a common subgroup

Students NOT dental

Diabetes NOT juvenile

Putting Them Together

1. Identify the concepts (Parse the question)
2. List specific terms for each concept
3. Put the terms for each concept in an OR statements within parentheses
4. Combine OR statements with AND
5. Add any NOT statements to the end

Creating a Boolean Search

QUESTION: Is Vitamin C helpful in treating the flu?

1. Identify concepts and list terms

Concept 1 Influenza	Concept 2 Vitamin C	Concept 3 Treatment
Influenza	Vitamin C	Treatment
Flu	Ascorbic acid	Therapy
		healing

Step 2

2. Make your OR statements, one per concept

- (influenza OR flu)
- (vitamin C OR ascorbic acid)
- (treatment OR therapy OR healing)

Steps 3 and 4

3. Put “AND” between each of the OR statements

(influenza OR flu) AND (vitamin C OR ascorbic acid) AND (treatment OR therapy OR management)

4. Consider any NOT statements you might want to add.

Note: NOT isn't used very often

Beyond Basic Boolean

- Field Searching
- Controlled Vocabulary
 - Subject vs. Keyword Searching
- Specialty Features
 - Truncation
 - Phrase searching

Field Searching

Almost all databases will provide you with some ability to search a specific field or fields.

- Allows faster searching
- Allows more accurate searching

Not all databases may make all fields searchable.
Each search system will require a specific format.

All Field vs. Specific Field Searches

I would like to find articles by John Smith.

- Search all fields: John Smith
- Search Author Field only: John Smith

I would like to find an article published in 1997.

- Search all fields: 1997
- Search Publication Date Field: 1997

Formats for Field Searching

Different databases provide different formats for specifying fields.

Most use field names or nicknames

- Field 'tags' OR 'labels'

which may follow a period or be placed in brackets or parentheses.

Some databases offer forms or drop-down menus.

Combining Field Searches

Multiple field searches can be combined using Boolean logic.

Find a 2005 article by an author named Hubble about ankle fractures in PubMed.

Combine with AND:

- 2005 in date/year field
- Hubble in author field
- Ankle fractures in title field

2005[dp] AND Hubble[au] AND ankle fractures[ti]

Controlled Vocabulary

A controlled vocabulary is a set of established terms where

- every term represents a single concept
- only one term is used for that concept

Example: Many words can be used to represent the concept "people who teach."

teachers
faculty
instructors
professors
tutors
educators
lecturers, etc

In a controlled vocabulary
one of these will be chosen
to represent the concept

MeSH = Faculty
Faculty, Dental
Faculty, Medical
Faculty, Nursing, etc.

Another example

- How many words could you think of for the idea of “cancer”?
 - Cancer, tumor, malignancy, neoplasm, sarcoma...
- Articles in a database
 - Article one: “Breast tumors in young women”
 - Article two: “Surgery for prostate cancer.”
 - Article three: “Diagnosing Melanoma.”

All three articles are about types of cancer but different terms are used in titles.

In a controlled vocabulary ONE word (*i.e.*, cancer) is chosen and placed in a special field, usually called a subject field.

For all three articles

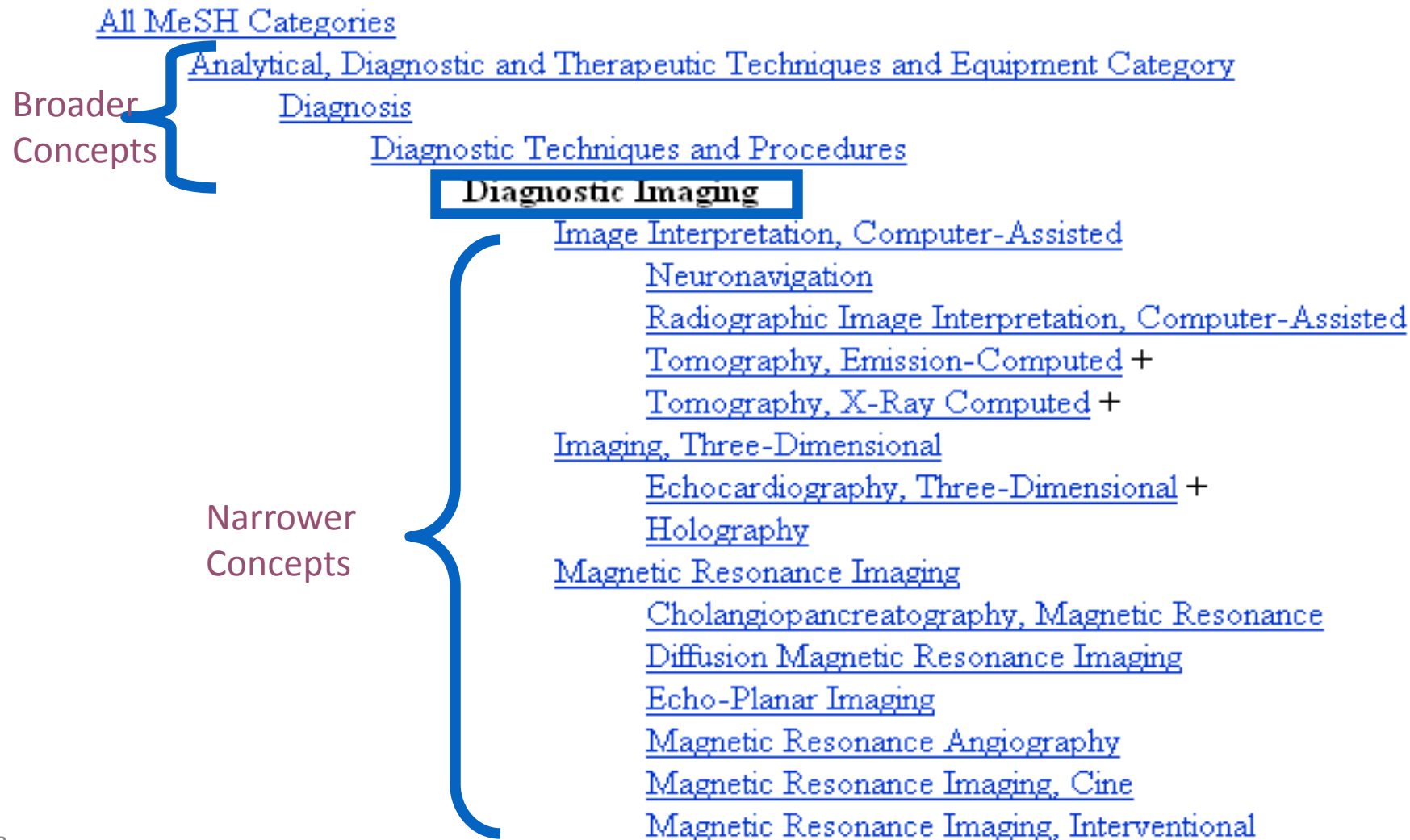
- Article one: “Breast tumors in young women”
- Article two: “Surgery for prostate cancer.”
- Article three: “Diagnosing Melanoma.”

The subject term (concept term) “cancer” is placed in the subject field by database indexers.

Now, Searching the database for cancer in the subject field will identify all records about the concept of cancer even if a different word for cancer is used.

- Search ‘cancer-in-subject-field’ finds all three articles
- How many articles would the search ‘cancer-in-title-field’ find?

Structure of Controlled Vocabulary



More on Controlled Vocabulary

- “Expanding” = Search includes all narrower terms beneath the searched term
 - Some databases do it automatically, others don’t
- “Focusing” or “Majoring” = For a given item, some subject terms are considered the major focus; you can select to return only those articles.
 - Hip fracture[majr] = only give me articles where hip fracture is an important concept

Subject vs. Keyword Searching

Controlled vocabulary searching

- Matches terms against a specific field in the record.
- You need to consult a thesaurus (paper or online) to find out what the controlled vocabulary term is for each concept.

Free-text (keyword) searching

- Some concepts have many synonyms. A free-text search statement would mean "OR" in all those terms together
- Matches terms against words anywhere in record (abstract, title, etc.).

Advantages to Controlled Vocabularies

- Using the controlled vocabulary can make your search more precise and easier.
- Increases the relevancy of results (fewer false drops)
- The indexers have already done much of the work for you.
- Searchable tree structures of terms can help you find new terms to use.

Problems with Controlled Vocabularies

- NOT all databases use a controlled vocabulary
- New concepts take time to be added
- There is often a lag phase during which the newest articles aren't indexed
- Controlled vocabularies can contain some very strange things and some concepts may not be handled well
- The controlled vocabulary must be easily searchable

Trying to understand what is and isn't in a particular controlled vocabulary can give you a big headache!

Combining Subject and Keyword Searching

To be comprehensive, it is often helpful to combine subject and keyword searching

("diabetes mellitus"[mh] OR diabetes[tw])

("sickle cell anemia"[mh] OR anaemia[ti])

Some Specialty Features

- Truncation
- Phrase searching
- Neighboring and other rarer Boolean operators (Near/n, Adjacent, w/n)
- query expansion

Truncation

What about including the singular and plural versions of words as well as other word variations?

For example: **therapy, therapies, therapeutics,**

You could combine them all in an OR relationship:

(therapy OR therapies OR therapeutics OR therapeutic)

But an easier way is by the use of truncation.

therap*

Each database handles truncation in a unique way.

The '*' and '\$' are the most common wildcard symbols.

More on Truncation

Some examples:

Bacter\$

Proc*

Vir?

Staph?

Be cautious when truncating!

If the word stem is too short, there may be too many possible variations and you might pick up unrelated terms.

For example, using proc* for finding procaine-like drugs will also include words like proceedings and process.

Phrase Searching

- Sometimes you want to force the database to search for a set of words in exact order

“fever of unknown origin”

Most databases will accept a phrase in quotes.

BUT...some do not handle phrases well and will automatically break them up – usually ‘AND’-ing the terms

Check how the database handles phrase searching before doing it!

Neighboring and other rarer Boolean operators

- (Near/n, Adjacent, w/n)
- Defence ADJ mechanism
- diabetes NEAR/3 prevention
- SPSS w/2 analysis

query expansion

- Adding one or some general keywords to special keywords
- Introduction of physiology
- History of Iran

Limits Options

- Many databases provide “limits” pages that make it easier for you to select common options such as language, article type, publication dates, human or animal, gender, age groups, etc.
- Each database’s limits options are unique
- Most limits can be done ‘by hand’ using field tags, but sometimes limit pages save time

Pubmed

Introduction: Medline

- Biomedical database produced by NLM (U.S. National Library of Medicine)
- Focus on all of biomedicine incl. nursing, dentistry and veterinary science
- Indexed with MeSH (= Medical Subject Headings with 24,219 total Mesh Terms)
- 15 million records from 1966-present; currently covers 5,000 journals
- Overlap with EMBASE ca. 60% (at journal level)
- Unique records especially in US titles + nursing literature etc.

<http://pubmed.gov/>

<http://www.nlm.nih.gov/pubs/factsheets/medline.html>

- [Medical literature \(Medline\) since 1950](#)
- Abstracts since 1975
- Molecular biology since 1985
- 5,200 journals worldwide in 37 languages,
- 19 million citations, 17 million abstracts, 670,000 / last year, 2,000-4,000 / day
- [MeSH Medical Subject Heading Thesaurus](#)
 - Controlled vocabulary
 - Indexing terms
 - Search concepts

Search field and tags

Affiliation [AD] Article Identifier [AID] All Fields [ALL] Author [AU] Author Identifier [AUID] Book [book] Comment Corrections Corporate Author [CN] Create Date [CRDT] Completion Date [DCOM] EC/RN Number [RN] Editor [ED] Entrez Date [EDAT] Filter [FILTER] First Author Name [1AU] Full Author Name [FAU] Full Investigator Name [FIR] Grant Number [GR]	Investigator [IR] ISBN [ISBN] Issue [IP] Journal [TA] Language [LA] Last Author [LASTAU] Location ID [LID] MeSH Date [MHDA] MeSH Major Topic [MAJR] MeSH Subheadings [SH] MeSH Terms [MH] Modification Date [LR] NLM Unique ID [JID] Other Term [OT] Owner Pagination [PG] Personal Name as Subject [PS]	Pharmacological Action [PA] Place of Publication [PL] PMID [PMID] Publisher [PUBN] Publication Date [DP] Publication Type [PT] Secondary Source ID [SI] Subset [SB] Supplementary Concept [NM] Text Words [TW] Title [TI] Title/Abstract [TIAB] Transliterated Title [TT] UID [PMID] Version Volume [VI]

Searching PubMed

- **basic search**

- ✓ bronchodilators for treating asthma in children

- **Searching by journal title**

- ✓ full journal title (e.g., molecular biology of the cell)

- ✓ title abbreviation (e.g., mol biol cell)

- ✓ ISSN number, a standardized international code (e.g., 1059-1524)

Searching PubMed

- Search by date
 - ✓ date publication [dp]
 - ✓ entrez date [edat]
 - ✓ mesh date [mhda]
 - ✓ 2012/2/5 [edat]
 - ✓ 2010:2014[dp]

Searching PubMed

- **Filters**

- narrow your search results by article types, text availability, publication dates, species, languages, sex, subjects, journal categories, ages and search fields

Searching PubMed

- **Advanced Search**
 - ✓ Searching by a [specific field](#)
 - ✓ Browsing the [index](#) of terms
 - ✓ [Combining searches](#) using history
- default Boolean operator is AND

Searching PubMed

- **Searching for a phrase**
- [Automatic Term Mapping](#) (ATM)
- Enclose the phrase in double quotes: [“kidney allograft”](#)
- Use a search tag: “kidney allograft”[tw]
- Use a hyphen: first-line
- Truncate: kidney allograft*

PubMed Central

What is PubMed Central?

- PubMed Central (PMC) is the U.S. National Library of Medicine's free digital archive of biomedical and life sciences journal literature.
- PMC serves as a...
 - a permanent archive
 - a platform for enriched linking, analysis, and use of research reports and data
 - one of many sources of full-text articles linked to PubMed/MEDLINE citations

فتو کده دات کام

هیچوقت در
رسیدن به آنچه
که از ته دل
می خواهی،
تسلیم نشو!



Searching the Evidence in Scopus



Scopus

- The largest bibliographic database which is updated daily
- Elsevier publishing
- Including peer review journals, open access journals, proceedings, books, patents, trade publications
- Biological (17%), health (26%), physical (27%), social records (31%)
- Basic search
- Advanced search
- Author search
- Affiliation search
- RSS (really simple syndication OR rich site summary)
- Scientometrics information like citation and h-index
- Link to ORCID and Publons

Search details in Scopus

- Boolean operators - AND, OR, AND NOT
- To search for a specific phrase, enclose the terms in double quotes (" ") or, for an exact match, brackets ({}).
- Proximity operators - W/n, PRE/n
- journal W/2 publishing
- Pre/n

Search Fields

[Topic](#)

[Title](#)

[Author](#)

[Author Identifiers](#)

[Group Author](#)

[Editor](#)

[Publication Name](#)

[DOI](#)

[Year Published](#)

[Address](#)

[Organizations-Enhanced](#)

[Conference](#)

[Language](#)

[Document Type](#)

[Funding Agency](#)

[Grant Number](#)

[Accession Number](#)

[PubMed ID](#)

Search Operator Precedence

If you use different operators in your search, the search is processed according to this order of precedence:

NEAR/x

SAME

NOT

AND

OR



WEB OF SCIENCE™

Introduction

- Clarivate analytics publisher
- Citation and bibliographic database
- Inventor of the first citation index in the world by Dr. Eugene Garfield
- Access to ISI record, patents, book, proceeding in web of science core collection
- Multidisciplinary database (science, social science, art and humanities)
- over 1.7 billion cited references from over 159 million records.

Introduction

- indexing back to 1900 across the world's highest-quality and most impactful publications.
- Access to of gold and green versioned open access articles.

Web of science platform

- Web of science core collection
- Current contents connect
- FSTA: the food science resource
- Data citation index
- Zoological records
- Russian science citation index
- Derwent innovation index
- Inspec
- Chinese science citation index
- BIOSIS previews
- CABI: CAB abstracts
- KCI: Korean Journal database
- Biological abstracts
- CABI: Global health
- SciELO citation index
- BIOSIS citation index
- Medline

Web of science core collection

- Science citation index expanded (SCIE): 9200 journals in 178 fields (1900-present)
- Social Sciences citation index (SSCI): 3400 in 58 fields (1900-present)
- Art and humanities citation index (AHCI): 1800 journals in 28 fields (1975-present)
- Emerging sources citation index (ESCI): 7800 journals in 254 fields (2005-present) introduced in 2015
- Book citation index (BKCI): 10000 new book added yearly (2005-present)
- Conference proceedings citation index (CPCI): 1990-present

Access to types of Open access journals

- **Gold open access:** journals which only publish open access
- **Green open access:** are published versions or manuscripts accepted for publication and available at repository
- **Bronze open access:** re published versions of record or manuscripts accepted for publication. The publisher has chosen to provide temporary or permanent free access.
- **Hybrid open access:** documents are in journals which provide authors the choice of publishing open access

Search details in WOS

- Basic search
- Author search
- Cited reference search
- Advanced search
- Chemical structure search
- Boolean operators (AND, OR, NOT)
- Phrase search ""
- Field search: TI, TS, AU, PY,...
- Proximity operators (NEAR/x, SAME)

Do you have any question



Thanks for your attendance
Be happy and successful

