

Searching Web of Science (WoS)

Science Citation (1900 - present)

Web of Science (WoS) covers three indices:

1. Science Citation Index,
2. Social Sciences Citation Index, and
3. Arts & Humanities Citation Index.

Each index has two parts – a general search section and a cited reference section.

From the Chemistry Library homepage (chemistry.library.nd.edu) click on the Web of Science link on right side of the page.

For this practice:

Be sure the **Web of Science** tab (at the top of the page) is selected.

Be sure the **Search** link is selected.

Be sure the **Limit to:** includes the three databases mentioned above and all years.

SEARCH - Author

Rule 1: Web of Science does not record first names or middle names just first initials and middle initials.

Correct: Kennedy JF

Correct: Kennedy J OR Kennedy JF

Incorrect: Kennedy John F.

1. How many articles have Paul M. Helquist as an author.
(You should get more than 150.)

Of course, you don't know if you have Paul M. Helquist (Notre Dame faculty member) or some other Paul or Peter or Phyllis or Patricia. There are two ways to limit your results by additional information.

Analyze Results (near the top of the page or at the bottom of the blue area) is preferred because it performs an actual search that is recorded in the search history.

The **Refine Results** (blue area on the left of the page) is a sorting/display mechanism for your current search. Results from using Refine Results are not recorded in the search history.

Choose **Analyze Results** to answer Q2.

2. How many of those articles from #1 are written by someone associated with the University of Notre Dame?
(You should get more than 100.)

Use **Refine Results** to answer Q3 & Q4.

3. Based on your answer in Q2 – In which journal does Paul Helquist most frequently publish?
4. Based on your answer in Q2 – In which year did Paul Helquist have the greatest number of publications?

SEARCH – Author (multi-part last names)

Rule 2: Replace each space or hyphen in a multi-part last name with a wild card symbol.

Truncation & Wildcard symbols:

- * for any number of characters;
- \$ for 0 or 1 characters;
- ? for exactly 1 character.

Example:

Van*Buren M
Van\$Buren M

5. Nancy J Miller-Ihli is a research chemist for the U.S. Dept. of Agriculture. She has been at the USDA for over 20 years. How many articles are indexed in WoS?
(You should get more than 60 articles.)

Which wild-card(s) give you the greatest results?

Optional: If you want to test things then redo the search several different ways:

Miller-Ihli NJ

Miller Ihli NJ

MillerIhli NJ

SEARCH - Topic

6. Circle the key concepts in the following sentence:

What is the effect of aspirin on blood clotting?

7. Type the sentence from #6 into the search box.

How many records are found?

In each record, the system identifies your search terms. Look at three records and write the key concepts identified by WoS.

Stopwords: WoS always discards any stopword.

A stopword is any word that is not a key concept

Implied AND: WoS inserts the Boolean AND between each of the remaining words.

Synonyms: WoS does not look for synonyms nor does it identify synonyms. You must supply the synonyms by using the OR operator.

Rule 3: Put parentheses around synonyms

correct: tradition\$ (holiday* OR thanksgiving OR Christmas OR Easter)

correct: (pork OR ham) dinner

incorrect: (pork) OR (ham) dinner

Truncation: WoS does not look for variant forms of a word. You must use the truncation symbols (* \$?) to get variant endings. The asterisk is the one you will use most frequently.

Phrases: Use "quote marks" to tell WoS you are looking for a phrase or searching for a stopword.

8. How many records contain aspirin or its synonyms salicylic acid and acetylsalicylic acid? Remember to consider variant endings and searching for phrases.

(You should get between 41,000 and 42,550 records.)

9. How many record contain blood clotting or its synonyms coagulation and hemostasis? Remember to consider variant endings and searching for phrases. (You should get more than 79,000 records but less than 82,000.)

SEARCH HISTORY

You can combine previously created sets. (For your assignment: print this page for Q2.)

10. Combine the two sets you created in Q#8 and Q#9 using AND as the Boolean operator. How many records are found? (You should get more than 1,200)

Proximity of key concepts: Using AND does not mean the key concepts are close to one another – one key concept could be in the first sentence of the abstract and the other could be in the last sentence.

CITED REFERENCE SEARCH – Cited Author & Cited Work

Cited Reference searching is the most important feature of Web of Science. It allows you to come forward in time with research.

For example, let's say I have just written an article about Vitamin C and in my article I cite the book *Vitamin C and the Common Cold* by Linus Pauling. You have a copy of Linus Pauling's book *Vitamin C and the Common Cold* published in 1970 and you want to find out who is doing current research on the topic of Pauling's book. The first place you would go would be to a database that allows you to do cited reference searching such as WoS or SFS. You would then discover that my article cited the Pauling book therefore my article might be of interest to you.

Rule 4: Cited references will include

1. pre-1900 records;
2. records to non-journal publication types (e.g. patents, conference proceedings, books, foreign language serials, etc.);
3. records to serials not indexed

11. Frank Castellino published an article in the journal *Immunity*. How many times has it been cited?
(Cited Work uses the journal abbreviation. Click **journal abbreviation list** to get the correct form of the name.)

This article has been cited four different ways. One is correct and the others are incorrect – two have the wrong year and one has the wrong starting page.

12. When was Frank Castellino's *Immunity* article incorrectly cited?
(Select the incorrect cites and click the **Finish Search >>** button.)

13. Edgar Fahs Smith published an article in volume 16 of the *Journal of the American Chemical Society* on pages 465-468. How many times has this article been cited?

ADVANCED SEARCH

For those that feel very confident about their understanding of Boolean operators and parentheses and don't want to be constrained by the boxes on the General Search page then this is the page for you. The Advanced Search page does not permit you to do any Cited Reference searching.

Look at the advanced search page before doing the next four questions: There is a search box near the top of the page. Above the search box are two sample searches with a link to more sample searches. To the right of the search box is a box listing all the available the field tags and Booleans. Below the search box is the search history.

Using Parentheses: Use parentheses to group synonyms of a key concept or to group disparate concepts. Separate each word / phrase within the parentheses by the Boolean OR or SAME.

SAME: Use this Boolean operator when you want the key concepts to be in the same sentence.

14. Combine the two sets you created in Q#8 and Q#9 using SAME as the Boolean operator. How many records are found?

How many records did you find in Q#10 using OR/AND/truncation?

How many records did you find in Q#7 by typing the sentence?

Which answer set (Q#7, Q#10, or Q#14) would you want to have and why?

15. How many articles were published in 1999 coming from the Notre Dame IN.
(Use either ad="notre dame in" or ad=(notre same dame same in) instead of the ci and ps fields.)

16. How many articles were published in 1999 coming from the Notre Dame zip code (46556). Look in the results column for the answer.

17. Why are the answers different for #15 and #16? Use the database and a Boolean operator to quickly answer this question.

18. How many articles are from your hometown?
(Be sure to include the US state abbreviation or Canadian province abbreviation or country name.
For example, Cambridge is a city in Australia, 2 Canadian provinces, England, New Zealand, and 25 US states.
More examples -> Help Index -> abbreviations state and country)

Write hometown and answer on the blackboard.

PRACTICE PROBLEMS:

19. How many articles have cited at least one 1997 Paul Helquist article?

How many self-cites are there?

20. Brad D. Smith is a faculty member of the Notre Dame Chemistry Department. How many articles has he published? (Hint: You should get between 149 and 170.)

21. How many articles were published by the University of Notre Dame Physics Department in 2005? (Hint: You should get less than 199)

How many times have the following four items been cited?

22. Trozzolo, Anthony M.; Winslow, Field H. Mechanism for the oxidative photodegradation of polyethylene. *Macromolecules* **1968**, 1(1), 98-100.

23. Plunkett, Roy J. Tetrafluoroethylene polymers. US Patent 2,230,654. February 4, 1941.

24. Pauling, Linus Carl. *Nature of the Chemical Bond and the Structure of Molecules and Crystals*, 3rd ed. Cornell University Press: Ithaca, NY, 1960.

25. How many times has US Patent 4,713,277 been cited?

For the next five, the number of documents found is not as important as constructing a thorough search strategy to get the most relevant documents. Remember to identify key concepts, think of synonyms or variant endings/spellings, use the right operators, and revise your search (if needed) by looking at search results.

26. Find documents describing the removal of cyanide from wastewater of gold mine tailings.

(Hint: What are the key concepts? What synonyms can you find for each key concept? You should find more than 25 records.)

27. Find documents describing β 2-microglobulin amyloid formation in patients undergoing hemodialysis resulting in joint destruction and kidney damage.

(Hint: you should find more than 100 records.)

28. Find documents that describe the preparation of (1,1-dimethylpropyl)benzene.

29. How do you prepare 2,4-dinitrophenol (51-28-5)?

30. Find research discussing the human health benefits of adding linoleic acid to animal feed while avoiding any research about health benefits of linoleic acid dietary supplements.