

Chemistry 400 – Senior Seminar

Tutorial #1 – Assignments

For each search performed, print out **two** of the references found, staple all pages together, write your name on the first page and turn into Dr. Johnston by 5:00 on January 26th.

If you prefer, you may copy your search results to a Word document (indicate which search is which), attach to an e-mail message and send to Dr. Johnston (djohnston@otterbein.edu).

1. Search on the topic assigned below using the *Science Citation* database (hint: be specific! it's not very useful when you get >100 hits – try several different approaches).

Bill C. – studies of proteins embedded in monolayers

Jeremy – studies of ferrocene incorporated into monolayers or Langmuir-Blodgett films

Bill M. – studies of enzyme-catalyzed reactions in monolayers

Lora – Langmuir-Blodgett films as models of lipid bilayers

Amanda – studies of electron transfer reactions in monolayers

Jadwiga – interaction of polymers with Langmuir-Blodgett films

2. Do a search on your seminar topic using the *Applied Science and Technology* database

3. Search for references that have cited the assigned source (below) using the *Science Citation* database (Cited Reference Search).

Bill C. – Fischer, E. O.; Scheider, R. J. *J. Organomet. Chem.* **1968**, *12*, P27-P30.

Jeremy – Braunstein, P.; Oswald, B.; Tiripicchio, A.; Camellini, M. T. *Angew. Chem. Int. Ed. Engl.* **1990**, *29*, 1140-1143.

Bill M. – Wipf, D. O.; Wightman, R. M. *Anal. Chem.* **1990**, *62*, 98-102.

Lora – Zana, R.; Mackay, R. A. *Langmuir*, **1986**, *2*, 109-113.

Amanda – Nannelli, P.; Block, B. P. *Inorg. Chem.*, **1968**, *7*, 2423-2426.

Jadwiga – Chisholm, M. H.; Heppert, J. A.; Huffman, J. C. *Polyhedron*, **1984**, *3*, 475-478.

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Tutorial #1 – Searching the OhioLINK Databases

Searching OhioLINK – *Applied Science & Technology Abstracts*

Start your web browser and go to <http://www.ohiolink.edu>. Click on [Research Databases](#), then click on [Science and Technology](#).

You will see many databases listed, however the two that are available and most useful to chemistry are: *Applied Science & Technology Abstracts* (10/83-present) and *Science Citation Index Expanded* (1990-present). We will start with *Applied Science & Technology Abstracts*. Click on the [Applied Science & Technology Abstracts](#) link.

I have a personal interest in the topic of oxidation DNA by small metal complexes, so let's try a quick search.

- Type **dna or nucleic acid** into the first box and **oxidation** into the second box. Make sure **Subject** is selected in the drop-down box to the left of the second box.
- Click on **Search**. OhioLINK will come up with ~54 hits based on your criteria.

OhioLINK Research Databases Applied Science & Technology Abstracts 1983 - Present
Search Menu

Enter words or phrases to find and click the Search button:

Keyword or phrase: dna or nucleic acid

Words In: Subject oxidation

Subject

Search for: This exact phrase

Search Clear Form

Language: [Any Language]

Article Type: [Any Type]

Sort By: [Most Recent Records First]

Display Records in Groups of: 8

Latest Update

Year: After

Auto Search for Plurals:

Browse by:
[Subject](#)
[Author](#)
[Journal Title](#)
[Article Title](#)
[Change Database](#)
[Help](#)

Notice how the search was structured. The most important term(s) were put in the first box – these are keywords that can occur anywhere in the citation. I used “dna OR nucleic acid” because either term may be used to describe what I am interested in. (The boolean operators work in much the same manner as in the STN database). Note that the computer will search for the entire phrase “nucleic acid” and not the individual words.

I limited the search by adding oxidation as a subject term. I could have made the search even more general by using the dollar sign (\$) as a “wildcard” character in the middle or end of a word. For example, the term oxid\$ would retrieve oxidation, oxidizing, oxidizer, oxide, etc.

For the technically minded, the actual search performed by the computer is structured as follows:

(OXIDATION.SU.) AND ((NUCLEIC ADJ ACID) OR DNA)

In English this means:

search for OXIDATION in the subject

search for NUCLEIC *adjacent* to ACID anywhere

search for DNA anywhere

combine NUCLEIC ACID with DNA using OR

combine (NUCLEIC ACID OR DNA) with OXIDATION using AND

Browsing your hits

A total of 54 records were retrieved, not all of which are necessarily relevant. Only the first eight are displayed.

- Click on the **Next** link (upper right corner, not the browser button) to show the next eight citations. You may click on a particular citation to see more information about that particular article.
- Try clicking on reference #11, Sequence dependent long range hole transport in DNA. The browser brings up additional information including the complete abstract and subject terms. Sometimes the subject terms can give you good ideas about other keywords that you might use in future searches.

Printing and Exporting

The most important part of your search is getting the information printed or exported so you can use it to find citations in the library.

- Click on **Title List** to bring you back to the list of citations.
- Let's say you want to print out citations 18 and 21. Display these by again clicking the **Next** link (upper right) and select these articles by clicking the check-box to the left of each citation.
- Now click the **Store Marked Records** button. At this point you could continue browsing or searching, but we will now view and export our citations. Note that you must mark and store records on a page-by-page basis. The computer does not remember the citations you have selected after you click the **Next** or **Prev** link.
- Click on the **View Stored Records** link on the right hand side of the screen. A list of options for viewing or exporting your records comes up.
- Select **My Browser** for the **Send records to** option.
- Select the **Citation + Abstract** radio button under HTML format.
- Scroll down and click the **Output Now** Button. (Click OK) Your records are displayed in your browser complete with citations and abstracts. At this point you could print your search.

Later this quarter you will learn how to use reference manager software called EndNote. Let's just see how we could export this search in a format usable by EndNote.

- Click on the **Back to Output Formats** link on the top of the screen.
- Now select **File Download** for the **Send records to** option.
- Scroll down and select the **Refer Format** radio button under Export formats.

- Click the **Output Now** Button. (Click OK) A dialog box comes up asking you for a location and file name to which the data should be written. Select a name/location and click **Save**. Opening this file would show something like that which follows.

```
%A Carter, Pamela J.
%A Cheng, Chien-Chung.
%A Thorp, H. Holden.
%T Oxidation of DNA and RNA by oxoruthenium(IV) metallointercalators:
  visualizing the recognition properties of dipyridophenazine by
  high-resolution electrophoresis.
%J Journal of the American Chemical Society [SUPP]
%V 120
%P p. 632-42 :
%D 1998
%8 Feb. 4 1998
%X The binding specificity for the intercalating Ru(tpy)(dppz)O2+
  complex (tpy = 2,2',2''-terpyridine; dppz = dipyridophenazine) was
  investigated for duplex DNA, HIV-1 TAR DNA and RNA, and tRNAPhe.
  ....
```

Other hints:

- You may type your search terms into any of the boxes. Terms in the first box will be searched in *all* parts of all citations. Terms in the second and third boxes may be limited (using the drop-down box) to the Author, Article Title, Journal Title, or subject fields.
- The database will search for *exact phrases* by default. Remember to use the AND and OR operators as needed to limit or expand your search. For example, if you wanted to search for papers by Claudia Turro, entering CLADIA TURRO and selecting Author will return nothing. Entering CLADIA AND TURRO will return twelve papers.
- You may use all the conventional Boolean operators including AND, OR and NOT.
- After performing a search, clicking on **Search Menu** will show your past searches and allow you to combine searches using AND or OR.
- The *Forward* and *Back* buttons on your browser do not always work as you might expect. It is suggested that you use the links on the screen instead of the browser buttons.

Logging off

- Click on the **Logout** button located at the bottom of the screen. You are brought back to the main Research Databases page.

Searching OhioLINK – *Science Citation Index Expanded*

A second database that is larger, more comprehensive, and allows a very powerful method of searching is called the *Science Citation Index*. This database tracks publications in all areas of the sciences and keys them by keyword (subject), author, and citation.

- Go to the Science and Technology databases page of the OhioLINK web page (see above) and click on Science Citation Index Expanded database link.
- Select **OPAL** from the Institution drop-down list (Otterbein is part of consortium of colleges called OPAL).
- Click the **Submit** button.

- Enter your name (i.e., Johnston Dean) and “barcode number” (found at bottom left of the front of your Cardinal Card, it starts with four 7’s and ends with four 8’s).
- Click the **Submit** button.
- Your Screen should say *Authentication Successful*. In a few seconds, your browser should take you to the opening screen of the ISI Web of Science Citation Database.
- Click the **Full Search** button.
- Select the **Science Citation Index Expanded** database by clicking the checkbox to the left (Note: clicking the link will only give you information about the database).
- Click the **General Search** button.
- Type **(dna or nucleic acid) and oxidation** into the topic box and click the **Search** Button.

ISI Institute for Scientific Information® CITATION DATABASES

HOME HELP CITED REF SEARCH LOG OFF

General Search

Enter individual search terms or phrases separated by search operators such as AND or OR then press SEARCH below.

[Set limits and sort option.](#)

Search using terms entered below.

Save the search as entered below for future use.

Clear all search terms entered below.

TOPIC: Enter terms to find from the article title, keywords, or abstract [Examples](#)
 Title only

AUTHOR: Enter one or more author names as SMITH AB

SOURCE TITLE: Enter words from journal title, or select from [list](#)

ADDRESS: Enter words from an author's affiliation ([abbreviations list](#))

Search using terms entered above.

Save the search as entered above for future use.

Clear all search terms entered above.

- The database retrieves ~3486 citations of which the first 10 are displayed (800 are accessible)

Viewing individual citations and Related Records

- Go ahead and click on the [How do charges travel through DNA? An update on a current debate](#) link. Selecting the individual citation link (blue underlined title) brings up information about this particular citation.
- Click on the **Related Records** button – over 1000 related articles are retrieved! This is a *very powerful* (i.e. *useful!*) method of searching. If you find an article that is *exactly* (or even very close to) what you are looking for, use the **Related Records** search to search

for articles that have referenced a similar set of sources. Note that this is very different from the idea of searching for a papers having a similar set of keywords.

Viewing citations

- Click the **Back** button on your Browser to get back to the *How do charges travel through DNA? An update on a current debate* article.
- Click on the **Cited References** button – a list of the citations for this particular article is shown. This shows what papers the author of this article cited.
- To get back to the original list of references click the **Back** button on your Browser and then click the **^Summary** button

Author Search

- Click on the **General Search** button to return to the main search page.
- Delete the subject terms used in the last search.
- Type **TURRO C** in author box (Note: only use last name + first initial + middle initial, JOHNSTON DH for example – see note in *Other Hints* below).
- Click **Search** – the database brings up ~33 citations. This is in general a larger database than the *Applied Science and Technology Abstracts* database we searched above.

Cited reference search

One of the *most powerful* methods of searching the literature (other than related records) is searching by cited references. As mentioned before, this database keeps track of every citation in every paper and each time a particular paper is cited. You can use this database to *search forward* from a significant paper to find every paper that has cited it since its publication. This can be a tremendously useful method of searching.

For example, there was an article published about ten years back entitled *Free Energy and Temperature Dependence of Electron Transfer at the Metal-Electrolyte Interface*, Chidsey, C. E. D. *Science*, **1991**, *251*, 919. This was an extremely significant paper in this particular area and hence has been cited many times. If I am interested in the latest developments in the area of electron transfer at electrode surfaces, chances are many of these papers will cite this seminal paper. Let's see what we can find...

- Click on the **Cited Ref Search** button at the top of the page.
- Type in **Chidsey CED** in the author and **1991** in the year (don't bother with the journal name, it is often difficult to know the correct abbreviation).
- Click on the **Lookup** button.
- Within the first ten citations none match what we are looking for (actually there is one which probably listed the wrong volume number – we humans aren't perfect!).
- Click on **Next 10>** button
- The correct citation is listed (next to last) indicating a total of 383 citations. That means there have been 383 papers published that have cited this particular paper!
- Select this citation by clicking the checkbox to the left.
- Find the papers that have cited this paper by clicking the **Search** button.
- The list of citations is displayed.

You have just searched *forward* in the literature on this particular subject, a very difficult task using any other database or method.

Printing and Exporting

- Select the articles you wish to print or export by clicking the checkbox to the left of the citation.
- Click on the **Submit** Button at the top (or bottom) of the screen. Note that you must click the check boxes and Submit button separately for *each* page of ten citations.
- Click on the **Marked List** button at the top of the screen.
- Scroll down and select both keywords and abstract as fields to include (highly recommended).
- Click on the **Format for Print** button. Your browser will display the citations complete with abstracts in a format suitable for printing.
- Click on the browser's **Back** button. Click on the **Export** button, and when prompted save the file wherever you desire as "ref.isi" or something similar (Note - the computer will likely append ".cgi" to the end of the file name. Keep this in mind later when trying to locate your files for importing into EndNote.) Opening the exported file would show something like that which follows.

```

FN ISI Export Format
VR 1.0
PT J
AU Chen, SW
   Murray, RW
TI Electrochemical quantized capacitance charging of surface
   ensembles of gold nanoparticles
SO JOURNAL OF PHYSICAL CHEMISTRY B
ID ASSEMBLED MOLECULAR NANOSTRUCTURE; PROTECTED AU CLUSTERS;
   ELECTRON-TRANSFER; COULOMB STAIRCASE; ROOM-TEMPERATURE;
   MONOLAYERS; DEVICES; THIOL; SIZE
AB Quantized double layer capacitance charging is observed for
   monolayers of nanometer-sized monolayer protected gold clusters
   (Au MPCs) anchored to macroscopic gold electrodes. The clusters
   ....

```

Logging off

- Click on the **Logout** button located at the top of the screen. A logout message from ISI Web of Science is displayed.

Other hints:

- Names are always entered as last name followed by initials with no spaces between the initials. For example, Dr. Jenkins would be listed as JENKINS JA. If you're not sure of the initials you can use the wildcard character (*) to search. Note that JENKINS J would not retrieve any of Dr. Jenkins' publications while JENKINS J* will (along with *many* others). Searching just JENKINS will also retrieve Dr. Jenkins' publications, but is even less specific and therefore retrieves more spurious "hits".
- You may type your search terms into any of the boxes. Usually the Topic and Author boxes will be most helpful. It is difficult to know or guess the Source Title as most journal names are abbreviated.
- The database will search for *exact phrases* by default. Remember to use the AND and OR operators and parentheses as needed to limit or expand your search.
- You may use all the conventional Boolean operators including AND, OR and NOT.