Discovering and Managing Scientific Information

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Useful Links

• **Research Guide:** [http://lib.guides.umd.edu/chemistryresources](http://lib.guides.umd.edu/chemistryresources)
  (Click on the tab “Course Materials” to find your course)

• Instructional videos: [http://lib.guides.umd.edu/chemistryresources/instructions](http://lib.guides.umd.edu/chemistryresources/instructions)

• **STEM Library:** [https://www.lib.umd.edu/stem](https://www.lib.umd.edu/stem)

• **UMD Libraries Web page:** [http://www.lib.umd.edu](http://www.lib.umd.edu)
Scientific communication

• Scholarly outlets:
  • Peer-review journals
  • Conferences
  • Scholarly books and book chapters

• Other venues:
  • Web sites
  • Blogs
  • Institutional repositories
  • Social media (Twitter, Facebook, Instagram)
  • Academic social sites (Academia.edu, ResearchGate, ResearcherID)
Finding scientific information on Twitter

• Twitter is increasingly popular among scientists as a place to share opinions and recent publications, with instant feedback possible from colleagues around the world (including people you may never have the chance to talk to in person!)

• Look for hashtags used in your field. You will encounter these terms, which begin with the hash or pound symbol (#). Click on a hashtag (such as #peerreview) to find out what people are saying about that topic.
Strategies for discovering information

• Finding the proper database for literature and property information
• Learning the databases index the literature and the property information
• Narrowing down results by
  • Research topic (adding more keywords)
  • Limiting by publication year
  • Filtering by a document type (for example, review)
  • Author
  • Author affiliation/institution
Publication formats

- Books
- Clinical trials
- Conferences
- Datasets
- Dissertations
- Editorials
- Journal articles
- Patents
- Preprints
- Reviews

Types of Journal articles

- Research articles
- Reviews
- Editorials
- Commentaries
- Letters or Notes
Difference between a Research article and a Review article

Research articles, called primary sources, provide direct or firsthand evidence about an experiment, event, object, person, or work of art. They have a Materials & Methods section (it could be called just “Methods” or “Experimental”) that describes how the experiments were performed.

Review articles are secondary sources, as they describe, discuss, interpret, comment upon, analyze, evaluate, summarize, and process primary sources. They usually DO NOT have an experimental section.
Organization of a journal article

• Introduction (also called “Background”)
• Materials and Methods (also called “Methods, “Experimental”)
• Results
• Discussion
• Conclusion
• References (cited literature)
• Supplementary Material (e.g., raw experimental data)
Finding scientific literature

- Google Scholar
- PubMed
- SciFinder (create an account using your @umd.edu email address)
- Web of Science
Finding properties of chemical compounds

- ChemSpider
- PubChem
- CRC Handbook of Chemistry and Physics
- The Merck index
- Reaxys
- SciFinder
Bibliographic Management Programs

• EndNote Online
• Mendeley
• Zotero
Managing citations: EndNote Online

• EndNote is a bibliographic management program, which allows to manage literature:
  • Export references from databases and journals
  • Maintain a personal library with references
  • Insert citations from this library into documents
• Instructions for using EndNote (including videos):
  http://lib.guides.umd.edu/chemistryresources/instructions
• Create an account for EndNote Online: www.myendnoteweb.com
Collecting references with EndNote Online

**Collect—Online Search**: allows searching databases (e.g., PubMed) and library catalogs directly from EndNote Online.
EndNote: Select a filter for a database to search (e.g., PubMed)
Searching PubMed from EndNote

Step 2 of 3: Connecting to PubMed MEDLINE: PubMed (NLM)

- arachidonic acid
- oxidation
- Sprecher

- retrieve all records
- select a range of records to retrieve

Search
Storing references retrieved from PubMed in a **group** in EndNote Online
Creating a **New Reference** in EndNote manually
Importing references in EndNote (1)

*Click on the tabs “Collect—Import References”*
Importing references in EndNote (2): Selecting favorite databases to import references from
Importing references in EndNote (3)

Once you select SciFinder as a Favorite, it will show up as an Import option.

Import to a new or an existing group.

2 references were imported into "Cholesterol" group.

Importing from EndNote?

File: Browse... No file selected.
Import Option: Select... Select Favorites
To: Select...
Creating a bibliography with EndNote

Select a group with references from your EndNote Library

Select a bibliographic style (for example, ACS styles)
Creating a bibliography with EndNote Online

Once you have selected a style, it will show up in this pull-down menu.

Select a bibliographic style (e.g., one of the ACS styles and click on "Copy to Favorites.")

The selected style will be included in your Favorites list.
EndNote Word Plug-in and Capture Button

You need to download EndNote Word Plug-in to be able to insert citations in Word documents. Once you do it, you will see a tab for EndNote in your Word program.

Cite While You Write™

Use the EndNote plug-in to insert references, and format citations and bibliographies automatically while you write your papers in Word. This plug-in also allows you to save online references to your library in Internet Explorer for Windows.

U.S. Patent 8,082,241

See Installation Instructions and System Requirements.

Capture:

To install the Capture tool, just drag the Capture Reference button to your Bookmarks bar (also known as "Favorites Bar" or "Bookmarks Toolbar"). In some browsers, you may need to right-click and select "Add to Favorites" or "Bookmark This Link." To use it, browse to a page you like and click the Capture Reference button in the Bookmarks bar. The Capture Reference window will open. Follow the instructions in the window.

Download Windows with Internet Explorer plug-in
Download Windows MSI for mass program installation
Download Macintosh
Inserting Citations in a Word document: Cite While You Write (CWYW)
Finding Literature in PubMed

• General search

• Advanced search: Use the indexing capabilities of PubMed to retrieve only articles that are specifically devoted to the topic.
Advanced Search in PubMed

On the main PubMed page (https://www.ncbi.nlm.nih.gov/pubmed), select "Advanced" to use the indexing capabilities of the database that will allow you to find works that are specifically devoted to the topic you are interested in.

Click on "Show index list" and select "enzyme inhibitors"
PubMed: Filtering search results and exporting references to EndNote

Select references for export and click on the Capture Reference bookmarklet in your bookmarks toolbar.
SciFinder: Finding literature and property information

- Searches simultaneously two large literature databases, the Chemical Abstracts database and MEDLINE
- Provides access to the largest database for properties of chemical compounds, the CAS Registry File.
- Requires creating an account using UMD email address
SciFinder: Searching for literature (1)
SciFinder: using “concepts”
SciFinder: Filtering results, removing duplicates, and exporting references
SciFinder: Exporting references to EndNote

If you don't see this option, save the file to your computer and import it in EndNote.
SciFinder: Finding properties of chemical compounds in SciFinder by chemical name

See instructional videos at http://lib.guides.umd.edu/chemistryresources/instructions

For every new chemical compound reported in the literature, CAS creates a unique number called CAS Registry Number.
SciFinder: Finding properties of chemical compounds by drawing a molecular structure
Reaxys: Finding properties/Structure searching

Click on “Create Structure or Reaction Drawing.”
Reaxys: Finding properties/Reaction searching
Web of Science (1): Using an asterisk (*) to expand a search

Adding an asterisk (*) at the end of a term will expand the search to include words containing any letters replacing the asterisk. For example, statin and statins.
Web of Science (2): Filtering results and exporting references to EndNote