



Intro to Library Resources

Biology 2002: Foundations of Biology for Biological Sciences Majors
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Part I: Finding and Evaluating References

When beginning any research project, you want to be certain that you have solid, legitimate references on which to build and support your work. In this session we'll go over some essential skills for finding and evaluating resources at the library. In Part I, we will cover the following:

- Identifying peer reviewed journals;
- Using databases to find articles from peer reviewed journals;
- Evaluating web resources.

In Part II, we'll cover how to manage your references using RefWorks.

A. Identifying Peer Reviewed Journals

When you are asked to find scholarly articles in peer reviewed journals, you are being asked to find articles that present the results of scholarly research. Research articles go through a peer review process before they can be published: Scholarly peers (other 'experts' in the field) review and critique the research to ensure the quality of the article.

In contrast, articles in popular magazines (including newspapers) might go through a fact-checking process, but are not based on scholarly research and do not go through peer review. Below is a quick guide to help you decide if the resource you have found is a scholarly, peer reviewed journal article, **or** a popular magazine article.

NOTE: Peer reviewed journals, popular magazines, and newspapers are all considered **periodicals**, meaning they are published at regular intervals. Trade magazines are periodicals written for specific professional audiences (e.g. advertising) but do not go through peer review.

	Scholarly/Peer Reviewed Journal	VS	Popular Magazine
Audience	Scholars; specific		Public; general
Author	Scholar/expert; university affiliation		Journalist; no degree listed
Peer review?	Yes		No
Cover	Lots of words, few pics		Eye catching, colorful pics
Ads	Few or none		Many
Where to buy?	From publishers; societies		Newsstands, bookstores
Article abstract?	Yes		No
Reference list	Yes		No
Length of article	Longer; 10+ pages		Brief; 1-5 pp
Language	Specialized vocabulary		Conversational English

GROUP WORK: Determine the category of the following publications:

	Scholarly or Popular	Reasons
Cactus and Succulent Journal		
Natural History		
Scientific American		
The Economist		
Poultry Science		
Science		
Harvard Business Review		
Quarterly Review of Biology		
BioScience		

B. Using Databases to Find Articles From Peer Reviewed Journals

Library Homepage: <http://www.lib.umn.edu>

Now that you know what peer reviewed articles are, you need to know how to find them. We'll briefly go over how to find articles in the following databases:

- **PubMed**
 - PubMed is a database of bibliographic information drawn primarily from the life sciences literature and contains links to full-text articles. Coverage: 1950 to present.
 - Tutorial: <http://www.nlm.nih.gov/bsd/disted/pubmedtutorial/>
- **Web of Science (WoS)**
 - Web of Science covers over 8,000 international journals in the sciences, social sciences, and arts and humanities. Coverage: 1975 to the present. Basic truncation symbol is the asterisk: *.
 - Tutorial: <http://scientific.thomson.com/tutorials/wos7/>
- **Biological Abstracts**
 - Biological Abstracts covers agriculture, biochemistry, biomedicine, biotechnology, genetics, botany, ecology, microbiology, pharmacology, and zoology. Coverage: 1980-2003 Approximately 90% of the records include abstracts. Basic truncation symbols are the dollar sign: \$ or the colon :.

The basic logic for searching most databases is the same, but each database has its own quirks. If you are searching by topic, you will want to do several searches using a variety of key words describing your topic.

Start by going to the Libraries' homepage (<http://www.lib.umn.edu/>). Find the box entitled "Articles and More" on the right-hand side of the page. You can find article databases and indexes by subject or by name.

1. PubMed

Click on "P" and scroll down the page until you come to "PubMed - U of M Students, Staff & Faculty". Be sure to use the version for U of M and not the public version, which only provided limited access to articles.

You can search PubMed with general key words, or by using the more specific MeSH controlled vocabulary.

An Introduction to MeSH® Vocabulary

MeSH is the acronym for "Medical Subject Headings." MeSH is the authority list of the vocabulary terms (also known as controlled vocabulary) used for subject analysis of biomedical literature at National Library of Medicine and is used to help impose uniformity in the indexing and cataloging of materials in the Medline database. MeSH terms are arranged in a hierarchical categorized manner called MeSH Tree Structures and are updated annually. As many as 15 headings may be assigned to an article.

Examples of MeSH Headings:

- body weight
- dental cavity preparation
- radioactive waste
- kidney
- self medication
- brain edema

Indexers can also assign Subheadings to further describe a particular aspect of a MeSH concept.

Examples of Subheadings:

- diagnosis
- surgery
- metabolism
- pathology.

In addition to assigning MeSH terms that describe the topic of the article, the indexer provides terms that reflect:

- the age group of the population studied
- the nature of the studies: e.g., human vs. animal, male vs. female
- the material represented (Publication Types) e.g., Clinical Trials, Editorial, Review

2. Web of Science (WoS)

The default screen is "Quick Search".

You may want to go to "General Search" for more search options.

Uncheck "Arts & Humanities" and "Social Sciences" in "Database Options" in the

lower left hand corner.

Use the wild card/truncation * to expand searches.

e.g.: gene* will return gene, genetic, genetics

Advanced Searches need Field Tags and Boolean Operators:

e.g.: AU=suslick k* AND TS=sonochemistry
(AU=(tillman d*) AND (AU=marion t*)) AND PY=2007
(AU=(tillman d*) OR (AU=marion t*)) AND PY=2007

3. Biological Abstracts

Choose to login with your University ID (x500 ID) and password. This will give you increased functionality (session recovery, saved search strategies, and the like).

The default screen is Advanced Keyword Search.

Use limits to screen out unwanted results.

Use truncation (\$) to broaden searches.

e.g.: gene\$ will return gene, genetic, genetics

Try mapping to subject heading to increase results.

C. Evaluating Web Resources

Anyone with access to the internet can create a web page. Therefore, if you are looking for sources that are not on the Libraries' website, you will need to evaluate the source for authority, accuracy, objectivity, currency, and coverage.

I. Authority

Is there an author? Is the page signed? What are her/his qualifications?

Is there a sponsor for the site? Is the sponsor reputable? How so?

Is there a link to information about the author or the sponsor? ("About Us")

If the page includes neither a signature nor indicates a sponsor, is there any other way to determine its origin?

Check the header or footer for affiliation.

Check the domain:

- **.COM** - usually commercial or business sites, but also many non-commercial sites.
- **.ORG** - often belong to non-profit organizations.
- **.GOV** - are generally reliable pages. However the party in power may selectively choose what information is published.
- **.EDU** - usually associated with educational institutions and includes faculty/staff/student pages, which may not always be accurate.

II. Accuracy

Is the information reliable and error-free? Are there spelling errors?

Is there an editor?

III. Objectivity

Does the information show a minimum of bias or is it a rant-fest?
Is the page designed to sway opinion?
Is there any advertising on the page?
Who is the audience?

IV. Currency

Is the page dated? If so, when was the last update?
How current are the links? Have some expired or moved?

V. Coverage

What topics are covered?
What does this page offer that is not found elsewhere?
What is its intrinsic value?
How in-depth is the material?

Visit these websites and evaluate them according to the above:

<http://www.thedogisland.com/>

<http://www.rythospital.com/>

<http://whitehouse.org>

<http://whitehouse.com>

<http://whitehouse.gov>