Finding Scientific Journal Articles by using Biological Abstracts database

Step 1: Go to the Biology 2000-level library guide at:
 http://dal.ca.libguides.com/biology_2000_level

View and listen to the 4-minute video about the Scientific Journal Literature
You’ll find the video listed on the guide’s Getting Started page, or at:
http://tinyurl.com/dal-sci-lit-libcast
The video will help you to distinguish between research articles & review articles (literature reviews).

Step 2:
Biological Abstracts is the key database that gathers together references to journal articles in the biological sciences. This database will help you to find articles for your assignments in biology courses. The examples shown below are from the field of evolution, but you can use the same process for other areas of biology such as ecology, genetics, cell biology, diversity, etc..

Task: To demonstrate how to use this database, let’s assume that we need to identify an evolutionary adaptation and find research articles about it.

The first step is to read enough background material about this topic in order to understand it and become familiar with the terminology. Check your textbook, other books at the library, or the Encyclopedia of Life Sciences Online (ELS) for information. You can find the link to the ELS under the “Find Secondary Sources” tab of the BIOL 2000-level library guide. Here’s an entry from the ELS about “Adaptation and Natural Selection”

Adaptation and Natural Selection: Overview
Jeffry B Mitton, University of Colorado, Boulder, Colorado, USA

Adaptation is both an evolutionary process and a product of natural selection: adaptation is a process of evolution in which traits are modified by natural selection; an adaptation is a phenotypic trait moulded by natural selection. In both cases the evolution is driven by natural selection.
Blue and striped mussels

The blue mussel, *Mytilus edulis*, exhibits a latitudinal cline in the frequency of blue and striped individuals, and this genetically determined colour and pattern variation is an adaptation to extreme temperatures. Adult mussels are sessile, and when mussels are exposed at low tide they are unable to escape from extremes of temperature. Most mussels are uniformly blue-black, but some mussels have light yellow or white striping on a blue background; the striping is controlled by a single gene. Thermistors placed inside mussels demonstrated that, when they are exposed to sunlight, blue mussels attain higher temperatures than striped mussels.

- It contains several paragraphs which describe an adaptation related to shell colour in blue mussels (*Mytilus edulis*).
- Some of the mussels have a shell colour which is blue-black, while others are striped.
- The blue-back mussels tend to thrive in the colder northern range of their habitat, while the striped mussels tend to thrive further south, where it is warmer.

Now check the bibliography at the end of this article or at the end of your textbook chapter for related articles. They may provide more information on the topic and give you an idea of when the initial research was conducted in this field. In this case, it dates back to at least the 1970s.


**Kettlewell HBD (1955) Selection experiments on industrial melanism in the Lepidoptera. *Heredity* 10: 287–301.**


**Mitton JB (1997) *Selection in Natural Populations*. Oxford: Oxford University Press.**

**Searching a Database**

Now that you have identified a specific evolutionary adaptation, you’ll need to search Biological Abstracts database to find journal articles about it.

**Concepts**

To search a database for articles, you will need to identify the key concepts (search words) that interest you. It’s useful to think about synonyms, organism names, variant spellings and related words (those which are more specific, as well as more general).

For example, some of the concepts or potential search words for this search include:

adaptation adaptive shell shell colour blue mussels *Mytilus edulis* molluscs
Search Tips

Here are other strategies that are helpful when searching a database:

- Use **AND** to connect separate concepts.
  e.g. mussels and adaptation

- Use **OR** to connect synonyms or similar concepts.
  e.g. colour or color

- Use truncation (the asterisk) to find variants of a word.
  e.g. adapt*  [finds words such as: adaptive or adaptation]

- Use quotation marks to find an exact phrase.
  e.g. “blue mussels”

Biological Abstracts

From the Biology 2000-level library guide, click on the “Find Primary Sources” tab, and then click on Biological Abstracts or go to: http://dal.ca.libguides.com/az.php?q=biological%20abstracts

Then click on the words "Biological Abstracts".

At this point, if you’re using a computer off campus, you may be prompted for your NetID username and Password. (your Dalhousie e-mail username and password.)

Below is a screenshot of the Biological Abstracts search screen. If you search by **Topic**, the database will try to find the search words in the article title, the abstract (brief summary of the article) or various subject headings that are assigned to the article.

To start, let’s search for the article by J. B. Mitton which was referenced in ELS. It was published in the journal *Chesapeake Science* and the article title indicated that it was related to the topic of shell colour. Notice that Biological Abstracts provides search options for various types of information (In this case, we’ll use Topic, Author, and Publication Name) and type in the search words.
When you click on the Search button, the reference for the article appears:

1. SHELL COLOR AND PATTERN VARIATION IN MYTILUS-EDULIS AND ITS ADAPTIVE SIGNIFICANCE
   By MITTON JB
   Chesapeake Science
   Volume: 18  Issue: 4  Pages: 387-390  Published: 1977

Click on View Abstract or on the article title (“Shell color and pattern…”) to see the Abstract, which summarizes the article content.

To see the fulltext of this article, click on the Get it at DAL button.

A new screen (“Access Options”) will open, which will indicate the fulltext options available for this article. In this case, there are two sources that will provide fulltext: JSTOR and SpringerLink. They’re the sources from which Dalhousie purchases the journal entitled Chesapeake Science.

To view the fulltext of this article, let’s use JSTOR. Click on the green GO button to the right of the JSTOR Life Sciences Collection...
...and click on the pdf, if you see that there is one available.  

**Note:** If asked to accept JSTOR’s terms & conditions, click on “I accept. Proceed to PDF”.

Here is the opening cover page, and if you scroll down....
Shell Color and Pattern Variation in *Mytilus edulis* and its Adaptive Significance

**ABSTRACT:** The blue mussel, *Mytilus edulis*, may be found with some degree of pale striping on the shell. This variation was postulated to have an adaptive significance, with the morphs differing in the proportion of incident sunlight transformed into heat. The hypothesis was tested by studies of geographic variation of the frequencies of the morphs along latitudinal and tidal zone transects, comparisons of sunlit and shaded environments, and by *in vivo* temperature measurements. The data generally support the hypothesis that striped individuals attain lower temperatures when exposed to sunlight, are favored where mortality from heat stress is common, and are at a disadvantage where mortality from freezing predominates.

---

- The Dalhousie Libraries subscribe to thousands of electronic journals.
- Chances are that the journal you need will be available online.
- However, if there is no online option on the “Access Options” screen, click on the “Dalhousie’s catalogue” option to see if the article is available in a paper version in one of the Dalhousie Libraries.
- If you want to read an article that is not available at Dalhousie, you may still be able to access a copy of the article by making a Document Delivery request at: https://libraries.dal.ca/borrow/document-delivery.html
  Click on “Patron Request Form”.
  (The service is free of charge to Dalhousie students.)

**Conducting a Topic Search**

Ok, so now you have one article. To find more articles, you’ll need to do a new search.

This will be a very broad Topic search to see how many articles relate to blue mussels:

- e.g. "blue mussel*" OR "mytilus edulis"

Note the use of the asterisk (star) after the word “mussel”. This will help to find the word “mussel” or the word “mussels”.
Type in the search words, and click on the Search button.

The Results screen shows over 6600 results. This is too many. You’ll need to reduce this to a reasonable number ( <100 results would be OK).

Read some of the article titles to see if they are relevant to your topic.

Unfortunately, in this case, many articles on the first page of results are not related to adaptation or shell colour.

Modify the Search – To Reduce the Number of Results
Take note of some of the features on the Biological Abstracts screens that can help to modify or refine the search. Using these techniques will help you to reduce the number of results:

Add Additional Search Words (this assumes the word “AND” between the search words)

- To the left of the Results list is the Refine Results panel.
- Add one or more search words to this search box. e.g. shell* adapt*
- Click on the search button.
- Now there are less than 100 results that are listed over several pages.
Each result provides a reference that shows the article title, the author names, the journal title, volume/issue, the page numbers, and publication date. These represent all the key elements that you need for your bibliography.

- In the Results list, the most recently published articles appear first. They describe recent research. Sometimes that may be exactly what you want - for example, if you already know a great deal about a research topic, and you want to keep up to date on the results of the latest studies.

- Other times, you may want to find articles that were written years ago – for example, if you want to read about the initial research that was conducted in a field. (Remember that on the Biological Abstracts initial search screen, you can limit to a specific publication date range.)

Again, you’ll need to read each article title to see if any are relevant to your topic.

If it's difficult to tell, click on “View Abstract” and read the underlying **abstract**:

Read carefully to **check the context** in which the search words are presented.

Just because the search words are there, it doesn’t necessarily mean that the article is about the topic that you had in mind.
Modify the Search... Reduce Number of Results - Select Major Concepts

Let's return to the initial set of 6600+ results to look at another way of reducing the number of hits:

On the left-hand panel, under **Major Concepts**, click on “more options” to see all of the research concepts connected with blue mussels:

Dozens of concepts are listed below. Are any of these suitable?

- How about “Evolution and Adaptation”?
- When you select it, and click on the Refine button, 154 results will appear, some of which may be relevant to your topic.
Modify the Search... by Literature Type

Let’s go back to the 6600 results. If you scroll down the left-hand panel and click on “View all options”, you’ll see that you can narrow the search by “Literature Types”. Click on the small triangle to see the items.

Among the 6600+ items in the initial results, there are 110 literature reviews.

By selecting the checkbox and clicking on “Refine”, you can see these article titles.

If a review article relates to your topic, it can provide you with a comprehensive overview of the research in this area.

Modify the Search... Search for Words in article Title (rather than search by Topic)

This can help you to reduce the number of results.

For example, when you search for “shell colour” as Topic words, there are 161 results:

When you search for “shell colour” as Title (article title) words, there are 37 results:

Okay, that’s enough about decreasing the number of results. Let’s turn to another situation:

What happens if you do a search and find only a few results?
Modify the Search – To Increase the Number of Results

Use Broader or More General Concepts

Here’s an example:

Let’s backtrack to the original search words and connect them using **AND** and **OR**. Here’s how they would look separated as concepts:

"blue mussel*" OR "mytilus edulis"

AND adapt*

AND “shell colour” OR “shell color”

On the Biological Abstracts search screen, type each concept into a separate search box:

Notice that the word **AND** is already present to help you to connect the search words.

On the right-hand side, select “Topic” from the dropboxes. Click on the word “Search” button.

Some people prefer to search this way, because they can type in all of the search words at one time. As you develop search skills, you’ll choose different techniques for different searches. That’s OK – as long as you find what you need. If you don’t, then check with a librarian, who can help you to adjust the search strategy.
The search produces 2 results (which we saw earlier).

- You probably need more than two articles, right? How would you find more?
- Think about ways in which you could broaden the search or make it more general.
- For example, in this case, would it be acceptable to find articles about other types of adaptations? Or could you find articles about shell colour adaptations in other types of molluscs?

If so, you could try this search: mollusc* AND adapt* AND (“shell color" OR “shell colour”)

There are 71 results (That's a lot more than 2 results.)

However, you'll have to check each article title and/or abstract to ensure which articles are really about adaptive value or about adaptations (or about molluscs, for that matter).

Here are a couple of other suggestions:
Modify the Search – To Increase the Number of Results

**Use the Asterisk to Truncate a Word**

For example, instead of the word adaptation, use: `adapt*`

Usually this will help you to find more results.

**Use OR to connect Synonyms or Related words**

- snails OR gastropods
- cats or felines
- dogs or canines or dachshunds

You get the idea...

**What if you can’t find what you need? Remember: Librarians are Your Friends!**

If you need more assistance in finding articles, librarians can help.

Here are some options:

1. Go to the Killam Library Service Point on the ground floor of the Killam Library, and ask the staff for assistance.

2. Contact the Biology Librarian, Michelle Paon (mpaon@dal.ca or 902-494-5198).

3. Use Novanet **LiveHelp** instant messaging service to ask a librarian for help finding articles: http://libraries.dal.ca/ask_a_librarian.html

Last modified: October 2017