

# **BIL 161: Assignment: Literature Search and Review**

A **literature search and review** is an organized search for published material on a selected topic.

An essential part of undertaking a research project is to find out what is already known about your area of interest. Previous research will tell you what is already established in this area and may give you ideas about what questions still need to be addressed.

Literature databases allow you to search a wide array of journals and other sources and retrieve high quality, reliable academic sources. Some of these may be in the form of an abstract, whereas others might be the full text of a journal article.

An effective literature search takes an organized approach:

## **1. Choose a Search Topic**

There are at least two different ways to approach this task.

### **a. As a team, formulate a question to narrow and define your topic.**

For example, if you wish to determine the effect of pH on biodiversity, you might ask “Do two ecosystems with consistently different pH exhibit differences in biodiversity that can be explained by pH?”

Generate keywords that each team member can use in a literature search.

### **b. Assign each team member an independent literature search.**

This is a better option if your team is not sure what factors or systems you wish to explore. Each team member can independently search the literature and bring back interesting ideas to the team for discussion.

## **2. Use appropriate keywords to use in your search**

Identify important keywords. In the example above, you might include “biodiversity, pH, ecosystem, acid, alkaline,” or any other related terms. Also consider:

- When to use broad terms, and when to use narrower terms to refine your search
- Using synonyms for your keywords to find every possible variant of the vocabulary.
- Using dictionaries to check spelling and find keyword synonyms
- Using online encyclopedias (e.g., Wikipedia) to find *initial* background information that might help you refine your search or choose an area for your research topic.

## **3. Choose a Database**

**Google Scholar** (<https://scholar.google.com/>) is a good place to start, but there are other excellent databases available through the UM Library system, as well.

## **4. Perform your Search**

- Use **Boolean operators** (AND, OR, NOT or AND NOT, always all caps) to combine search keywords.
- Truncate (shorten) your keywords to make your search broader.
- If you are not sure how to spell a keyword, use **wildcard operators** ( , . \*) to replace letters.
- To narrow a search, enclose phrases in quotation marks: “pH effect on species richness”
- Use the database to search for keywords in different places, such as “title” or “abstract”.
- If you find a useful article by a particular author, search that author’s name to find papers on the same topic.

- If you find a useful article, search its Literature Cited section to find additional, related sources.
- Make sure the literature you are citing is recent and current.
- Make sure the literature you use is from a **peer-reviewed, scientific journal**.
- Make sure to identify whether your source is a journal article, a book, a thesis, etc.

## **5. Determine the availability of the material you wish to reference.**

If the papers you wish to read are not available online, you may be able to get a copy by contacting the people at the UM Richter Library Help Desk. If our library does not have the paper you need, they may be able to get it via interlibrary loan. Since this may require some turnaround time, start this assignment immediately, and don't find yourself hamstrung by time constraints.

## **6. Complete the Literature Search Assignment**

Each team member must find **at least three relevant papers** from peer-reviewed scientific journals on factors affecting biodiversity.

Each team member must read his/her publications of interest completely and analytically.

***You must understand the contents of your papers in order to discuss them with your team.***

**Your assignment is to submit to your lab instructor:**

1. a **copy of each scientific paper** relevant to your study
2. a completed **Literature Search Template** (linked to the online syllabus)

**Your lab instructor will tell you**

- whether to submit the Lit Search assignment electronically or as hard copy
- exactly when the Lit Search assignment is due

**Be sure you know all requirements and any special details about the Literature Search assignment before you leave the lab today.**