Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Honor Code Initials \_\_\_\_\_\_\_\_\_\_

The goal here is to learn how to find and cite that will help you write your final lab report for this course. ***YOU*** ***MUST WORK ON YOUR OWN*!** For guidance on how to structure a search strategy, check out:

1. *A Student Handbook for Writing in Biology* by Karin Knisely (pgs. 9-30).
2. The BI 125 Library Guide available at <http://libguides.bsc.edu/cell-molec>.
3. You may also want to go to the Library and ***TALK WITH A LIBRARIAN***!
4. The tips included in the questions below.

***Learn the Name-Year Citation Format***

During the second week of lab, you learned about the different types of scientific literature (popular vs. primary vs. secondary). The primary and secondary articles you looked at during lab have been posted under the Laboratory Materials page on Moodle. Since these two articles will be valuable resources as you write your lab report, let’s learn how to properly cite them…

* To learn about the proper citation format **CSE NAME-YEAR SYSTEM)** that we’ll use throughout this course, refer to pg. 90 in Knisely.
* Pay particular attention to the ***in-text*** and ***end reference*** formatting information provided in Tables 4.5 and 4.6.
* In the assignment on Moodle, use the Name-Year System to record properly formatted in-text and end references for both (1) Choudhury and Srivastava and (2) Perron et al.

**1. Type the in-text and end references for Choudhury and Srivastava in the spaces below:**

In-text reference:

End reference:

**2. Type the in-text and end references for Perron et al. in the spaces below:**

In-text reference:

End reference:

­­***Find Articles on Steel Industry Pollution***

When writing your laboratory report for this course, you’ll need to introduce the topic by explaining how the steel industry affects soil (i.e. what types of chemicals/pollution are found near steel plants), supporting your statements with appropriate references. To find relevant articles on the steel industry, you’ll need to develop a literature search strategy.

**3. According to Knisely (Ch. 2), you need to begin your literature search by first understanding your topic, then: (fill-in the following blanks)**

* Defining your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Subdividing your topic into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Choosing effective \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Connecting keywords with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + If you’re having trouble finding articles and need to broaden/expand your search, Knisely recommends using the connector/operator \_\_\_\_\_\_\_\_\_\_\_ between keywords.
  + If you’re finding too many articles, and perhaps articles that aren’t sufficiently focused on your topic, Knisely recommends using the connector/operator\_\_\_\_\_\_\_ between keywords.
  + If you need to search for an exact phrase, Knisely recommends that you use \_\_\_\_\_\_\_\_\_\_\_.

Now that you’ve learned some basic strategies for searching the literature, let’s brainstorm about useful search terms. Specifically, each term below reflects a different concept related to the effect of the steel industry on soil. Feel free to add some terms of your own, using a thesaurus, as needed:

Steel Industry Soil Pollution

Iron Industrial Clay Contamination

Heavy Metal Manufacturing Loam Toxic waste

Go to the BSC library homepage (<http://library.bsc.edu/>), and in the ***Discovery Search tool***, enter one term from each column, using the operator “or” between each term (for example, you might enter: *steel or industry or soil or pollution*). Now repeat that search, using the operator “and” between each term. Lastly, try the search without any operators. How did the results vary?

**4. Steel industry pollution article:**

* Initial search terms:
  + Terms used:
  + Number of results found when using the operator “or”:
  + Number of results found when using the operator “and”:
  + Number of results found without an operator:
* Final search terms and operators:
  + How many results did this search return?

Try several combinations of search terms and operators and use Knisely’s decision tree (Figure 2.4) on page 20 to decide which combination works best for you. Scroll through the list of results and click on the “Articles@BSC” link beneath a title that looks interesting and relevant. Once you find a free, full-text article, (1) determine the proper citation format; and (2) download a copy of the article as a PDF to submit with this assignment.

* Was the full text article you found a primary/research article or a secondary/review article? How did you know?
* Use the Name-Year system to record the in-text and end reference information for this article:

In-text reference:

End reference:

***­­­Find One Research and One Review Article on the Effects of Heavy Metals on Soil Bacteria***

When writing your laboratory report for this course, you’ll not only need to describe the pollutants found in soil near steel plants, but more specifically, you’ll need to address how the specific heavy metal you tested affects soil bacteria.

To find relevant articles, apply what you learned above. Begin by adding a few search terms to the table below:

|  |  |  |  |
| --- | --- | --- | --- |
| Effect | Zinc | Soil | Bacteria |
| Impact | Manganese | Clay | Prokaryote |
| Resistance | Heavy Metal |  |  |
| Lead | Efflux |  |  |

In the Discovery Search tool on the BSC library homepage, search for relevant articles by trying out a few combinations of search terms and operators. Scroll through the list of results and click on the “Articles@BSC” link beneath a title that looks interesting and relevant. ***You’ll need a full-text research article and a full-text review article for worksheet questions 5 and 6, respectively***

If you find an article with a promising title and/or abstract, feel free to request it (for free!) via interlibrary loan (<http://library.bsc.edu/illperiodicalrequest.html>). Even if it doesn’t arrive in time for this assignment, you should receive a copy long before your lab report is due at the end of the term! If you’re feeling adventurous, you can also try a different database or search engine. Two popular options for BI 125 students are [PubMed](https://www.ncbi.nlm.nih.gov/pubmed/) and [Google Scholar](https://scholar.google.com/)!

**5. Effect of heavy metals on soil bacteria primary/research article:**

* What search terms did you use?
* Which operators, if any, did you use?
* How many results did this search return?
* How do you know the article you selected is a primary/research article?
* Use the Name-Year system to record the in-text and end reference information for this article below:

In-text reference:

End reference:

**6. Effect of heavy metals on soil bacteria secondary/review article:**

* What search terms did you use?
* Which operators, if any, did you use?
* How many results did this search return?
* How do you know the article you selected is a primary/research article?
* Use the Name-Year system to record the in-text and end reference information for this article below:

In-text reference:

End reference: