Annotated Bibliography: Researching Evolutionary Adaptations

What is an Annotated Bibliography?
An annotated bibliography is a list of resources (e.g. journal article, book) that you have consulted in order to write a research paper. It differs from a standard bibliography.

There are two components to an annotated bibliography:
1. Bibliographic information – The full citation of the source following the proper referencing format (see Appendix D of lab manual); AND,
2. An annotation – A summary, a critical evaluation and an assessment of the value of the source to your research topic. Each annotation should be no more than 250 words.

What is an annotation?
A critical assessment of resources consulted when conducting research.

This is an important first step when writing research papers in any discipline. Mastery of this skill will serve you well throughout your academic career.

What is not an annotation?
A simple summary of a resource. Do not confuse an abstract with an annotation.

What you are going to do:
a) Select an organism from the list provided (on CourseSpaces) on which to focus your research.
b) Research and identify a peculiar or unique evolutionary adaptation of this organism. In 5 – 8 sentences, briefly describe the organism and the peculiar evolutionary adaptation on which you will focus your research.
c) Imagine that you were tasked with writing a review paper that describes and discusses this organism’s peculiar or unique evolutionary adaptation.
d) Select a minimum of five scholarly sources (at least three must be primary) that would be appropriate to cite if you were to write a research article. Sources should be varied.
e) Write an annotated bibliography for all five selected sources.

The purpose of this assignment is to demonstrate that you can:
- Create a properly formatted bibliography/reference list.
- Write a succinct, yet detailed annotation of a piece of scientific writing.
- Identify and briefly explain what the source is about; outlining the main results, methods and conclusions.
- Critically evaluate the quality of the research presented.
- Reflect on the validity of a source in relation to a specific research topic.
What are the steps to creating an Annotated Bibliography?
Give some thought to each source you select. It will help if you take some notes. Prepare your annotations. **EACH** annotation must:

1. **Briefly summarize** the source:
   - What type of source is it?
   - What is the hypothesis?
   - What are the major results, methods and conclusions?
   - Your summary should be no more than 1/3 of your annotation.

2. **Evaluate** the source by analysing the **quality** and **accuracy**.
   - First consider the quality of the science. Answer questions like...
     - Is the science verifiable?
     - Are the statements and claims made supported by other research? Cite other research that supports or does not support their claims.
     - Is the research and interpretation of results biased?
     - What are the limitations of the source?
     - How does this source compare to other sources?
   - Then consider secondary factors such as ...
     - Are the authors credible?
     - Is the information current?

   - Be sure to support your statements with evidence. For instance, what other research supports the results and conclusions of a study? What evidence suggests that something is out of date? A date alone does not determine whether information is current or not.
   - You **must** use sources **other than** the five sources you are annotating as supporting evidence.
   - Refer back to the workshop from lab 1 to review how to properly evaluate scientific sources using the CRAAP test.

3. **Assess** the **relevance** of the source to your **research topic**.
   - How does this fit into your research?
   - How can you use this source in your research paper? Be specific.
   - How does it help shape your argument?
   - Does it offer a new point of view? New evidence? An historical perspective?
   - **HINT**: focus on the results and conclusions of the source to decide how you will use this source in your own writing.

➢ Remember, your research should focus on describing and discussing an organism’s peculiar or unique evolutionary adaptation. Things that you would want to consider for such a paper include:
o What advantage does this adaptation provide?
o How has this adaptation contributed to the success of this organism?
o The evolutionary history of this adaptation. Is it simply a hypothesis or is there evidence to support it?
o Is this adaptation found in other organisms or environments?

Your selected resources should help you to answer these questions and provide you with information to write a comprehensive research paper on this topic. Assessments should not all be the same “I will use this info in my discussion about an evolutionary adaptation...”. Find sources that will support many aspects of a good research paper on this topic.

**Format of an annotated bibliography**

*Last name, Initials. Year. Article title (in sentence case).* Journal name Volume:page – page. (See appendix D in the lab manual for examples)

Summary… Evaluation…Assessment.

**Example:**


This primary journal article investigated the effects of temperature and humidity on the process of encystment, a form of dormancy performed by tardigrades. Using laboratory and field studies Amphibolus volubilis were subjected to desiccation and extreme temperatures. Results showed that temperature changes were responsible for inducing and maintaining encystment. The physiological condition of an organism also affected the type of dormant cyst that developed. It was shown that unlike other invertebrates A. volubilis was able to undergo both forms of dormancy: diapause and crytobiosis (quienscence). The methodology in this article is clearly outlined, making the study verifiable. Though sample sizes varied for each experiment they were large enough to show significant results. Cyst formation in response to environmental stress is corroborated by several studies including a more recent study by Clausen et al. (2014) showing that salinity affected cyst formation in a marine tardigrade. This article is written by scientists from Modena and Reggio Emilia universities and is published in a reputable, peer-reviewed scientific journal. I will use this study as supporting evidence in my discussion on how dormancy strategies differ in tardigrades compared to other animal groups. This study will also support my discussion about why this organism has successfully colonized such diverse habitats.
Assignment Requirements:

- Follow all instructions provided above.
- Follow the referencing style outlined in Appendix D of your lab manual.
- Annotations follow citations. They should be single spaced and indented.
- Submit a .doc or .docx file of your assignment to the CourseSpaces Drop Box by 11:00 pm on October 23rd, 2019.
- Reference list for additional sources of information (e.g. for your brief organism description and supporting evidence) placed after your annotations.
- Title should be specific, including the evolutionary adaptation being studied.

Additional Requirements:

- Always back up your work. Lost assignments due to computer crashes, file corruption or other computer related issues will not be excused. Once you have lost one report, you will never need reminding of this again. Be responsible and constantly save your files (make back up files in case your computer crashes, gets lost or stolen). Never rely on one single file on one single computer!!! We suggest storing a backup copy on a flash-drive and on your email account.

- Proofread. It is your responsibility to make sure you write what you intend to say (do not rely on a computer program to do this for you):
  - use proper spelling (the words “beet” and “beat” are both real words but have vastly different meanings)
  - use complete sentences
  - use simple, concise phrases
  - provide clear descriptions and explanations
  - use proper punctuation
  - use proper grammar
  - do not use contractions (‘don’t’, ‘haven’t’, ‘weren’t’, etc.).

- Follow scientific writing rules.
  - do not quote. Paraphrase instead and cite the author(s)
  - only use acronyms if they are common for the field you are writing about, and you intend to use them often throughout your paper
  - e.g., i.e., et al., in vitro, and in vivo should all be italicized, as should genus and species names
  - if you use e.g. do not use etc. as well
  - once an organism’s genus and species name has been stated in full, it can be shortened to the first letter of the genus followed by a period and the full species name, e.g. Homo sapiens can be shortened to H. sapiens
  - Genus and species should be written out in full in the title, abstract and when starting a sentence
  - ‘data’ is plural, therefore write ‘data are’ (the singular is ‘datum’ and is rarely used).
  - if using abbreviations, define them first before you abbreviate, e.g. standard deviation (S.D.) or British Columbia (B.C.)
  - for numbers ≤ ten use words, for numbers ≥ 11 use the number
- **Edit** your paper. Follow the required format for biology reports.
  - Microsoft® Word document in `.doc` or `.docx` format only (.pages, .pdf, or other file types are not accepted)
  - 1.0 inch margins on all sides
  - 12 point font, Times New Roman, including header and footer
  - italicized Latin or Greek genus and species names
  - pages numbered in bottom right of footer using Arabic numerals only (i.e., 1, 2, 3; not i, ii, iii, or I, II, III)
  - title of report centered at top of first page, in sentence case
  - student name and number in top right header of first page
  - lab section and instructor’s name in top left header of first page
  - evaluation criteria attached (posted on CourseSpaces)

**Helpful Resources:**

- University of Guelph’s guide to writing an annotated bibliography: [http://www.lib.uoguelph.ca/get-assistance-writing-specific-types-papers/writing-annotated-bibliography](http://www.lib.uoguelph.ca/get-assistance-writing-specific-types-papers/writing-annotated-bibliography)
- List of books at the end of Appendix D in your lab manual.