**Scientific writing | BIOL3120**

In this exercise, you will have a chance to practice scientific writing and ethical reasoning.

**Learning objectives**

At the end of this exercise, you should be able to:

* Break down a STEM writing prompt into manageable parts
* Adopt an academic, professional style and tone when writing in a scientific setting

**Exercise 1 Structure of a scientific paper – hourglass**

A common structure for science writing is the hourglass model, where a paper starts with the big picture significance of the work and then focuses down their writing until they come to their specific research question. The methods and results focuses on one topic and then the discussion gets more general to finish on the big picture outcomes of the research.

I have taken the topic sentences (first sentence from each paragraph) from a friend’s paper and I would like you to put them in order, in the hourglass structure.

Diagram

Description automatically generated

Instructions

1. Download the topic sentence file from iLearn.
2. Use the sort function to put the sentences in the order you think fits the hourglass structure
3. Compare your order with the manuscript and the ordered topic sentence file.
4. Discuss with your peers and reflect on the following questions
   1. Did this help you to think about manuscript structure, what did you learn?
   2. Do the topic sentences alone give you enough information to understand the content of the manuscript?
   3. What are the benefits of the hourglass model?

Citation: Menkhorst, E., Zhou, W., Santos, L.L., Delforce, S., So, T., Rainczuk, K., Loke, H., Syngelaki, A., Varshney, S., Williamson, N. and Pringle, K., 2020. Galectin-7 impairs placentation and causes preeclampsia features in mice. *Hypertension*, *76*(4), pp.1185-1194.

**Exercise 2 Deconstruct a Prompt**

The point of this exercise is to help you to break down a STEM writing prompt into manageable parts. Your prompt for this task is your AT2 Literature Review. Open that prompt and complete the following table.

If you have already completed this for your assessment, please complete alternative task 2 instead.

|  |  |
| --- | --- |
| What is the topic you are being asked to write about? |  |
| What type of writing is required?   * Are you expected to explain a scientific concept or defend a position on a topic? |  |
| What key points does the task ask you to address?   * Is there more than one part to the task? * Are you expected to reference provided sources or find their own? |  |
| Is there a specialized format or organizational pattern required for the writing?   * Is this a lab report? * Should you follow the Claim-Evidence-Reasoning format? |  |

In your groups share your charts to compare, contrast and modify your responses.

You may wish to apply this to your literature review and write a list of the information that would be included in a proficient response to this prompt (i.e. “a clear claim on [the scientific topic], data and evidence from each source, clear explanations about how evidence connects to the claim,” etc.).

**Exercise 2 Alternative Task: Scientific Principles and Ideas**

The point of this task is to help you understand the importance of connecting all of your reasoning to scientific principles and ideas.

Open the draft of your literature review and highlight any content that reflects scientific principles and ideas. Once highlighted, think about those areas and how those principles and ideas should help to fully ground the evidence and explanation in science that is known to the larger scientific community. This effectively bolsters the legitimacy of that evidence. In places where these principles and ideas aren’t evident, think about what could be added in order to create those larger connections.

**Exercise 3 Write Like a Scientist**

The point of this activity is to help you adopt an academic, professional style and tone when writing in a scientific setting.

Download the exemplar literature review from iLearn and skim the document, highlighting vocabulary that is precise and specific to the scientific topic.

Notice that sentence structure is appropriate, varied, and often complex. Find examples of sentences that fit these descriptions. Discuss that precise, unbiased, domain-specific vocabulary and appropriate sentence structure lead to the clarity of ideas in writing.

Below is an example that scores low in scientific writing provided by TurnItIn. Work in your groups to transform sentences into formally-written, grammatically appropriate, and unbiased, domain-specific language.

**Letter to the Editor: Social Medial  
Social Media: A Distraction**

In today almost every one is on a social networks like Facebook, Twitter, and more. Now with social networking we can talk to people far away, and seeing picture's that we may not get to. It is good because you can just talk to them threw a social media website. And you can put everything on it, like your cat or puppy or your breakfast, but it dose have some drawback like teens do not get go outside as much anymore. Social media and networks is a way to distract yourself. Me personally I enjoy using social media when I'm bored or don't have anything to do. But it can be a problem for teenagers and adults. Social media causes bullying, and causes a distraction. If I my phone around me when I am doing work, I usually am checking it every five minutes. Seriously, dose anyone else do this? I think its mostly a distraction.