

Instructions for Article Summary Essays

The goals of the article summary essay assignments are to learn about current research in comparative physiology, and to practice summarizing and analyzing the primary scientific literature using non-technical language (also see the file "A guide for writing plain language summaries of research papers"). To complete this assignment, first select a specific, non-human focal organism. Your focal organism could be a fish, amphibian, non-bird reptile, bird, non-human mammal, or tracheate invertebrate. Next, use a scientific database to search for and locate a primary research article on your organism that is on a topic in one of the broad areas of physiology that we are currently studying.

For your **first** summary essay, due **Friday, February 21**, this article should be in the general subject area of respiration, blood transport, or circulation. For example, it could be about the function of gills, lungs, or skin in aerial or aquatic gas exchange, or it could be about related blood properties (i.e. O₂ or CO₂ exchange), circulation, or cardiovascular physiology. Your **second** summary essay (assigned later in the semester) should focus on a topic in energy metabolism or thermoregulation, and will be due **Friday, March 27**.

For locating your article, I **strongly** suggest narrowing your search to one of the two following journals. It is most straightforward to use specific scientific databases to search within each of these journals. If you wish to use an article from some other journal, you will need to send it to me for approval at least one week ahead of the assignment deadline. As you should know, quick links to these databases are available through the BIOL 190 Library Guide:

<http://lib.siena.edu/BIOL190>

Journal	Standard Abbreviation	Journal Publisher	Database
<i>Journal of Comparative Physiology Part B</i>	J COMP PHYSIOL B	Springer	SpringerLink
<i>Comparative Biochemistry and Physiology Part A</i>	COMP BIOCHEM PHYS A	Elsevier	ScienceDirect

Be aware that SpringerLink and ScienceDirect each cover only a subset of the biology-related journals. The historical gold-standard database for locating primary research articles is called the Web of Science (owned by Clarivate Analytics). You may also have heard of SCOPUS (owned by Elsevier). At present, the Siena library does not have subscriptions for either of these more comprehensive databases, but you may find them useful to know about for future research purposes. Both the Web of Science and SCOPUS are structured similarly to SpringerLink and ScienceDirect. For our purposes, be aware that these databases are structured to facilitate more effective searches than Google Scholar.

Preparing your summary:

1. Once you have identified an appropriate article, read the entire article. Then select the ONE figure or table that contains the most important finding (the major results) from the whole article.
 2. Submit a copy of the full title page of the article you chose, including the entire abstract. Also submit a copy of the figure or table that you think is the most important. Be sure to include the full figure caption.
 3. Select a non-science audience for your summary, explaining the contents of the figure or table you chose. Assume you are trying to teach somebody about this interesting but obscure topic.
 4. Write your summary by including the following elements:
 - a. An introduction of what the authors are trying to study
 - b. An explanation of how the figure or table you chose fits into the particular biological question the authors address
 - c. Relevant background information for the study, especially any special biological characteristics of the study animal
 - d. Thoroughly explain what the figure or table shows. Be sure to define terms, explain axes, describe trends, and provide enough information about the methods so that the results make sense.
 - e. Explain why this finding is important, particularly for the animal you chose (i.e. draw on the article's discussion section). What is the article's take-home message? What did you or the authors learn from these findings? How do the findings relate to the biology of the animal?
 5. Ensure that your summary is written in your own words. Note that you should NOT quote directly from the article, nor should you borrow freely from the organization, sentence structure, or content of the original article. All of these elements can be considered plagiarism, whereas the goal of this assignment is to practice clearly and articulately summarizing complex information in your own words.
 6. Once written, now read through your essay. Make sure the answer to each of the following questions is somewhere in your text, in your own words, and understandable to a first-year biology student or friend, or any other non-science audience of your choosing:
 - a. What is the point of this study?
 - b. What is special or interesting about the study animal?
 - c. What major question does the figure/table you chose address?
 - d. What kind of data are shown or plotted?
 - e. How were the data obtained?
 - f. What major points does the figure/table illustrate?
 - g. How do the findings in your data set relate to the biology of the animals studied?
 7. The rubric that I will use to grade this assignment is provided on the next page.
- Note that your summary should be just that – a summary. Aim for less than two (2) double-spaced pages.**

Article Summary Essay - Rubric

TOTAL: _____/50 pts.

Title page and figure provided (8 pts)

- Full title page included, with complete abstract
- Summary figure or table included
- Figure legend or table title included with figure

Background components (10 pts)

- Purpose of study clearly identified
- Important study animal characteristics described
- Overall research question articulated

Figure description (12 pts)

- All terms defined
- Axes explained
- Major trends described
- Includes description of methods used to produce figure

Conclusions and significance (10 pts)

- Includes explanation of why finding is important – how finding advances scientific understanding
- Finding interpreted in the context of the biology of the animal

Clarity and Communication (10 pts)

- Writing style appropriate for target audience (i.e. general audience with no jargon)
- Correct grammar and punctuation used
- Writing demonstrates understanding of material
- Flow of ideas logical (paragraphs transition well from one to the next)