

## **BIOD33: Comparative Animal Physiology**

**Summer 2020**

**Course Instructor:** Dr. Stephen Reid; Office SW526; [sgreid@utsc.utoronto.ca](mailto:sgreid@utsc.utoronto.ca)

**Lecture Time and Place:** On-line (LEC99)

**Stephen Reid's Office Hours:** There will be no in-person office hours due to the current state of emergency and the closure of the university to all but essential personnel. Questions can be sent at any time via e-mail. We can also arrange to talk by phone if necessary.

**Teaching Assistant:** Phillip Oelbaum ([phillip.oelbaum@mail.utoronto.ca](mailto:phillip.oelbaum@mail.utoronto.ca))

**Recommended Textbook:** Animal Physiology by Hill, Wyse and Anderson. Sinauer. The bookstore carries the latest version. Earlier editions are also perfectly suitable. The textbook isn't necessary. I will provide notes to accompany each lecture. If you do wish to purchase a textbook please check with the bookstore do determine how to go about this. They do have some copies.

### **Evaluation**

**Assignment #1: "Inside/Outside JEB-Style Summary Article"; 10%**

**Due Date: Sunday June 21st, 11:59 PM.**

Submission Method: Send a PDF file via e-mail to:

- 1) Stephen Reid at [sgreid@utsc.utoronto.ca](mailto:sgreid@utsc.utoronto.ca) (All Students). ALL STUDENTS MUST SUBMIT AN COPY OF THEIR ASSIGNMENT TO DR. REID.
- 2) Phillip Oelbaum at [phillip.oelbaum@mail.utoronto.ca](mailto:phillip.oelbaum@mail.utoronto.ca) (Students who met with Phillip for this assignment should ALSO send a copy of it to him.)

In this assignment you will select an article from an animal physiology/comparative physiology journal and write a summary about this article. However, this is not a standard summary. The assignment will take the form of the summary articles that are found at the beginning of each issue of the Journal of Experimental Biology in the "Inside JEB" or "Outside JEB" sections.

These "Inside JEB/Outside JEB" articles are essentially a layperson summary of the scientific article that is being summarized. Articles within the "Inside JEB" section are summaries of articles that appear in the Journal of Experimental Biology (usually the same issue). The "Outside JEB" section includes summaries of articles that appear in other journals. Links to JEB are below.

Access this journal, and other journals, using the University of Toronto Library system. You can login and this will give you access to journals in the U of T system.

**Step 1:** Look at “Inside/Outside JEB” sections within the Journal of Experimental Biology to see what kind of summary article you are expected to write.

**Step 2:** Select a full journal article that you will summarize. This article may come from JEB or it may come from any other animal/comparative physiology journal. **You may NOT select an article that has already been summarized in the “Inside/Outside JEB” section of JEB.**

**Do not select a review article.** You are writing as summary of an original research article; one with the standard abstract, introduction, methods, results and discussion sections.

The summary article that you write should be written so that it can be understood by someone who has relatively little background in science but isn't completely lacking in some knowledge of science. For example, an individual who is half-way through high school. It is an important skill to be able to explain one's research to a “lay crowd” and this is the primary purpose of this assignment.

Your summary should be more “easy reading” than an in-depth detailed scientific report.

The maximum word limit is 600 words.

You should come up with a “catchy” title for your summary (see examples in JEB).

Your summary should also have an interesting picture accompanying it (again, see examples in JEB).

The summary is something that you or I might pick up to read as easy-reading “at the cottage” rather than an article that you would read because you are researching or studying in that field.

There are no required formatting instructions. Please do not ask about formatting issues such as single or double-spacing etc. Use your own judgement as to what is appropriate.

There is only one reference. This is the paper that you are summarizing.

**Step 3:** “Meet” with the instructor or TA to discuss the assignment. Given the on-line nature of this course this summer, these “meetings” will have to consist of phone calls, e-mails, Skype or some other form of communication. A phone call is probably the best way to go about this. These “meetings” will be arranged via e-mail.

The reasons for this “meeting” are: 1) to make sure you understand exactly what the assignment is and what is expected. 2) To check that you have selected an appropriate article to summarize. 3) To prevent you from leaving everything until the last minute. The meetings are highly encouraged because experience in the past few semesters reveals that students who don't attend these meetings do not complete the assignment properly.

Students with last names beginning with “A” to “L” will meet with Dr. Reid for the first assignment.

Students with last names beginning with “M” to “Z” will meet with Phillip Oelbaum for the first assignment.

These individual “meetings” (which will take approximately 15 minutes each) will ideally occur in weeks 4, 5 or 6 of the semester. Please send an e-mail to either myself or Phillip (depending upon whom you are meeting with for this assignment) to book a time for the meeting.

The assignment is due by Sunday June 21<sup>st</sup> by 11:59PM. This is at the end of the sixth week of classes (not including reading week). Submit by sending a PDF file via e-mail as described above.

**Assignment #2: “Climate Change and Animal Physiology/Function”; 20%**

Due Date: Sunday August 9, 11:59 PM.

Submission Method: Send a PDF file via e-mail to:

1) Stephen Reid at [sgreid@utsc.utoronto.ca](mailto:sgreid@utsc.utoronto.ca) (ALL STUDENTS). ALL STUDENTS MUST SUBMIT AN COPY OF THEIR ASSIGNMENT TO DR. REID. THE MARK IS AUTOMATICALLY ZERO IF THIS DOESN'T TAKE PLACE.

2) Phillip Oelbaum at [phillip.oelbaum@mail.utoronto.ca](mailto:phillip.oelbaum@mail.utoronto.ca) (Students who met with Phillip for this assignment should ALSO send a copy of it to him.)

In this assignment you will write a mid-size paper (approximately 2500 words) that examines some aspect of climate change/global warming/habitat destruction on some aspect of animal physiology/biochemistry/overall function.

Your paper should be based on at least eight (8) original research articles. In other words, you should look at at least 8 original research papers to help you select a topic. More than 8 may be needed for your full paper; 10-12 have been typical with these papers over the last two semesters.

Your paper should contain at least three (3) figures that come from these articles or elsewhere.

Please note that this word limit of 2500 words is the official word limit. If other word limits appear elsewhere they are to be ignored.

Titles, figure legends and references do not count toward the word limit. The word limit is somewhat flexible. I will not count words. If your paper is 2500 “plus or minus several hundred words” that is fine. Don’t waste time trying to adhere to an absolute word limit if your are only going to be slightly over or under.

**Step 1:** Select a topic. You have very broad latitude to write about some aspect of climate change/global warming/habitat destruction on some aspect of animal physiology/biochemistry/behavior/general function. You can look to many sources to help you select a topic (scientific journals; news articles; documentaries).

**Step 2:** Once you have selected a topic, gather some research articles on that topic (you need to use a minimum of three) and formulate a plan for your paper. The paper should ideally have an introduction that discusses the type of climate change etc. that you are discussing and an introduction to the

physiology etc. The paper should also have some form of concluding paragraph. How the paper is organized in the middle sections will depend upon your topic and the areas that you wish to discuss. Do not default to the “Ontario High School Essay Format” of introduction, three body paragraphs and a conclusion. You can have dozens or hundreds of paragraphs if the format of your paper warrants that.

For example, if you write about “global warming” and “rainbow trout physiology”, there could be sections of the paper that address how global warming alters different physiological systems. Another example could be how habitat destruction alters energy metabolism in large versus small mammals. The point is that you are investigating how some form of climate change alters some form of animal form/function.

**Step 3: “Meet” with the instructor or TA** to discuss the assignment.

The reasons for this meeting are: 1) to make sure you understand exactly what the assignment is and what is expected. 2) To check that you have selected an appropriate article to summarize. 3) To prevent you from leaving everything until the last minute.

Students with last names beginning with “M” to “Z” will meet with Dr. Reid for the second assignment.

Students with last names beginning with “A” to “L” will meet with Phillip Oelbaum for the second assignment.

The assignment is due by Sunday August 9 at 11:59PM. This is almost at the end of the twelfth week of classes (not including reading week). These individual “meetings” (which will take approximately 20 minutes each) will ideally occur in weeks 9, 10 and 11 of the semester. Please send an e-mail to either myself or Phillip (depending upon whom you are meeting with for this assignment) to book a time for the meeting.

### **Midterm Exam, 30%**

This exam will cover the material from lecture 1 to approximately lecture 12. It will cover respiratory physiology plus the hearts and circulatory systems (cardiovascular physiology) which may spill over into lecture 13.

The format may include a combination of multiple choice questions, short-answer questions and long-answer questions. The exact format of the midterm and the final exam will be determined shortly. Some questions may be given in advance; some will not be given in advance.

### **Final Exam, 40%**

The final exam will cover the entire course with most of the questions coming from lectures 7-12. A breakdown of the exam questions will be provided prior to the exam. The format will be similar as the midterm.

### **Policy Regarding Illness, Term-Work and Self-Declaration**

Unless otherwise noted, the UTSC-wide policy regarding self-declaration for missed term-work is still in effect as is the requirement to submit medical notes to Jennifer Campbell in the biology office if you miss the midterm exam.

**Accessibility Statement:** *"Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. AccessAbility Services staff (located in Rm AA142, Arts and Administration Building) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email [ability@utsc.utoronto.ca](mailto:ability@utsc.utoronto.ca). The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course."*

**Academic Integrity Statement:** *"The University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences in papers and assignments include using someone else's ideas or words without appropriate acknowledgement, submitting your own work in more than one course without the permission of the instructor, making up sources or facts, obtaining or providing unauthorized assistance on any assignment. On tests and exams cheating includes using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes."*