

## **BIOD33: Comparative Animal Physiology**

### **Summer 2019**

**Course Instructor:** Dr. Stephen Reid; Office SW526; sgreid@utsc.utoronto.ca

**Lecture Time and Place:** Thursday, 10 AM to 12 PM in SW128.

Note that there is a tutorial session also included in the timetable from 12 PM to 1 PM on Thursday in SW143. This tutorial is NOT mandatory; it is still a work-in-progress as it has never been included in the course before. It is also not realistic to have a mandatory tutorial in the summer in a D-level course.

### **Stephen Reid's Office Hours**

Thursday from noon to 2PM (at least to begin the semester).

You may also stop by my office any time my door is open. You may also (via e-mail) book a specific appointment. I will also answer questions via e-mail.

**Teaching Assistant:** Terrence Chang; terrence.chang@utoronto.ca

**Recommended Textbook:** Animal Physiology by Hill, Wyse and Anderson. Sinauer. The bookstore carries the latest version. Earlier editions are also perfectly suitable.

### **Evaluation**

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

Due Date: Sunday June 16, 11:59 PM.

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

- 1) Stephen Reid at sgreid@utsc.utoronto.ca (All Students)
- 2) Terrence Chang at terrence.chang@utoronto.ca (Students who met with Terrance 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.

<http://jeb.biologists.org/> (Links to an external site.)Links to an external site.

<http://jeb.biologists.org/content/by/year> (Links to an external site.)Links to an external site.

**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. Do not select a review article. You are writing a 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. The only thing I ask is that you don’t waste paper as I will likely print these to mark them and make comments.

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.

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 “A” to “N” will meet with Dr. Reid for the first assignment.

Students with last names beginning with “O” to “Z” will meet with Terrence Chang for the first assignment.

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

The assignment is due by Sunday June 16 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 4, 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)
- 2) Terrence Chang at [terrence.chang@utoronto.ca](mailto:terrence.chang@utoronto.ca) (Students who met with Terrance for this assignment should ALSO send a copy of it to him.)

In this assignment you will write a mid-size paper (approximately 2000-2500 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 three (3) original research articles (more than 3 are likely to be needed; 6-8 have been typical with these papers over the last two semesters) and should contain at least three (3) figures that come from these articles or elsewhere.

Please note that this word limit of 2000-2500 words is the official word limit. If other word limits appear elsewhere they are to be ignored. This is the definitive word on the word limit.

**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.

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 “O” to “S” will meet with Dr. Reid for the second assignment.

Students with last names beginning with “A” to “N” will meet with Terrence Chang for the second assignment.

The assignment is due by Sunday August 4 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 20-30 minutes each) will ideally occur in weeks 9, 10 and 11 of the semester. Please send an e-mail to either myself or Terrence (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 lectures 1-6. It will consist of a combination of multiple choice questions, short-answer questions and long-answer (essay) questions. Given that there are only five weeks of classes prior to reading week, it is possible that the midterm exam will only cover the first 5 lectures. This will depend upon when the midterm exam is scheduled. Unless I say otherwise, consider that the midterm will cover lectures 1-6.

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

The final exam will cover the entire course with approximately two-thirds to three-quarters 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 the same as the midterm.

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