**BIOD34 – Conservation Physiology – Fall 2021**

***Course Description*:** Most management decision in conservation are made on ecological information (distribution, fecundity, lifespan, predator-prey interactions), but the physiology (the function of the cells, organs, and tissues) of these plants and animals is largely ignored when making these decision. Through topics such as climate change and pollution this course will explore the effects these stressors can have on the physiology of animals. You will also learn the physiological tools and techniques used in conservation efforts.

**Prerequisites:** BIOB34H3, and (BIOC58H3 or BIOC60H3 or BIOC61H3)

***Learning outcomes*** (or what I am expected to learn in this course):

The main goal of this course is to expose you to advanced topics in animal physiology and to develop your team work, research, and science communication skills (reading and writing).

By the end of the course students should be able to:

1. Use and apply physiological concepts first introduced in prerequisite courses to new case studies and more advanced topics.

2. Critically evaluate the scientific literature in the physiology field, process information and use it to communicate persuasive arguments during small group debates on a given topic.

3. Through small group debates, recognize the limits of the scientific process, including the inherent uncertainty in scientific knowledge data and models and identify the limitation of model systems/organisms and methodologies.

4. Develop effective team work skills (including leadership skills, attentive listening, utilizing appropriate methods for conflict resolution and managing group dynamics) when working collaboratively with peers during group assignments, debates and oral presentations.

5. Create presentations based on scientific research literature and present data using effective visuals.

6. Acquire and collate the information and data relevant to a chosen topic, and objectively interpret these data to draw an informed conclusion as part of a review paper.

7. Ethically identify the contributions of others’ work within the written, oral, and visual work through the use of proper citations.

8. Accept and provide constructive criticism while evaluating the review papers of your peers and receiving feedback on your own work.

***Lectures:*** Wednesdays 11:00am-1pm, on Zoom. **This is the Zoom link for lecture:** <https://utoronto.zoom.us/j/85873670089> the passcode is 504232. This is an online synchronous course. The lectures will be recorded and made available after on Quercus.

***Tutorials:*** Thursdays 11:00am-12:00pm (tutorials start in week 2) **This is the Zoom link for tutorial:** <https://utoronto.zoom.us/j/81404109745> and the passcode is 558464. You only have to attend tutorials synchronously in the week you are presenting your debate – the exact date will be assigned to you at the beginning of the third week of classes – if you know ahead of time you will not be able to attend your presentation please get in touch with you course instructor as early as possible so you can be moved to another group/present on a different day. Feedback from students have indicated that they enjoy attending the tutorials synchronously and it’s much easier to gain participation marks by attending in person and participating in the debate than posting a message online after.

***The Teaching & Course Administration Team***

Course Instructor: Dr. Cosima Porteus

Email: [cosima.porteus@utoronto.ca](mailto:cosima.porteus@utoronto.ca)

Office Hours by appointment only: <https://outlook.office365.com/owa/calendar/UTSC3@utoronto.onmicrosoft.com/bookings/>

**Note**: you must book your appointment at least 6 hours in advance; appointments are 15 minutes long.

Course coordinator: Jennifer Campbell

[jac.campbell@utoronto.ca](mailto:jac.campbell@utoronto.ca)

All questions regarding course administration, course pre-requisites and exclusions, exam scheduling, conflicts & viewings, missed exams, marks verifications and any special accommodations pertaining to medical illness, AccessAbility accommodations, religious observances etc. will be addressed by the course coordinator. When making requests with conflicts, missed term work and medical illness please email Jennifer and CC the course instructor.

Teaching Assistant: Natalia Sandoval Herrera

Email: [natalia.sandovalherrera@mail.utoronto.ca](mailto:natalia.sandovalherrera@mail.utoronto.ca)

***These are some of the topics we will cover:***

1. Conservation physiology's roots, purpose and tools
2. Metabolism
3. Thermal ecophysiology
4. Ocean acidification and sensory physiology
5. Hypoxia and aquatic animals
6. Ion regulation and the physiology of aquatic arthropods
7. Plastics and microplastics
8. Sound pollution
9. Ecotoxicology and reproductive physiology
10. Conservation physiology and disease
11. Human wildlife interactions, biologging
12. Co-production and perspectives

***Lecture notes*** will be posted (in PDF format only) on Quercus at least 24 hours before each lecture. **NOTE: I reserve the right to make changes to the lecture notes after they are posted, but will post updated lecture notes after the class.**

***Tutorial Schedule for BIOD34***

Week 2 – How to assess scientific literature

Week 3 – Demonstration of a current debate in conservation physiology

Week 4 – Critically assessment of a paper from the primary literature

Weeks 5 – 11 Tutorial debates

Week 12 – Review session

***Textbooks*:** There is no required textbook for this course; however, I would recommend the following textbooks:

**Conservation Physiology**, 1st edition, by Christine Madliger et al.

➔ Ebook version <https://uoftbookstore.vitalsource.com/textbooks?term=9780192581778>

**Animal Physiology**, 4th edition, 2016, by R.W. Hill et al.

➔ Ebook version <https://uoftbookstore.vitalsource.com/textbooks?term=9781605355993>

***Evaluation:***

Tutorial debates 25% (5% participation in discussion, 15% presentation, 5% response)

Review paper 30% (2% choose appropriate topic by deadline; 8% first draft, 5% peer feedback on first draft, 15% final paper)

Midterm exam 10% (multiple choice exam)

Final Exam 35%

**Important notes regarding evaluation**

**Tutorial debates 25%** (5% participation in tutorial discussions, 15% presentation, 5% response)

**This will help you learn to recognize the limits of the scientific process, an important thing for upper year students (see learning objective 3, but also 1, 2, and 4-6).** These are presentations on a controversial topic in conservation physiology to be presented during the tutorial sessions. You will be assigned to a topic and a stance (pro or con). You are expected to search the scientific literature on the topic and prepare an 8 minute presentation giving some background to the topic and providing your arguments. Then the other point of view will be presented. You will then have 5 minutes to organize your arguments and respond (3 minutes maximum). Then the other group will then respond to your arguments (3 minutes maximum). This will be followed by a 10 minute class discussion on the topic. **If you can’t attend the tutorial you can watch the recorded debates and contribute to the discussion using Quercus**. Discussions will be open for 1 week after each tutorial. I expect you to contribute comments to discussions on most weeks (you get a pass on 1 week of the debates, but you should contribute to the rest).

**Review paper 30%** (2% choose appropriate topic by deadline; 8% first draft, 5% peer feedback on first draft, 15% final paper)

Due dates: topic approved by Oct 4th, 2021 at midnight EST; first draft Oct 18th, 2021 at 5pm EST; feedback due Nov 1st, 2021 at 5pm EST; final draft due Nov 15th, 2021 5 pm EST.

Submission method: For the first draft and review paper submit via the Review Paper – First Draft Assignment on Quercus. For the final draft please submit via the Review paper- Final Draft Assignment on Quercus.

In this assignment you will write a relatively-short review paper (approximately 3000 words) that examines some aspect of conservation physiology. Your paper should be based on at least four (4) original research articles (more than 4 is okay and is likely to be needed) and should contain at least three (3) figures that come from these articles or elsewhere.

**Step 1:** Select a topic. You have a wide range of subjects to write about some aspect of conservation physiology. You can consult the journal Conservation Physiology (<https://academic.oup.com/conphys> ) for papers and ideas. The subject chosen should include some aspect of conservation (climate change/global warming/habitat destruction/population decline) and at least one aspect in which physiology is being used to address this.

**Step 2:** Once you have selected a topic, gather some research articles on that topic (you need to use a minimum of four) and formulate a plan for your paper. The paper should include an introduction that discusses the conservation problem you are discussing and an introduction to the physiology used to address it. The paper should have a concluding section in which you summarize your ideas/findings. The middles section of the paper will depend on how you organize your paper and your topic, and should have a logical progression of the areas you wish to discuss. **However, it should include a detailed description of the physiology covered by your topic (as detailed as possible!).**

**Step 3:** Meet with the instructor to discuss the assignment. The reasons for this meeting are: 1) to make sure you understand the assignment is and what is expected; 2) To check that you have selected and appropriate topic to summarize; 3) to prevent you from leaving everything until the last minute. These meetings will ideally occur before October 4th, 2021. Please book a time for the meeting (15 minutes) using this link <https://outlook.office365.com/owa/calendar/UTSC3@utoronto.onmicrosoft.com/bookings/>

**Step 4:** Write your paper. Make sure to include at least 4 primary research articles. The first draft is **due Oct 18th, 2021 at 5pm**. This is 8% of your final mark. It should be close to the work limit (at least 2000 words for the first draft, close to 3000 for the final), include at least 4 primary journal articles and 2-3 figures. Formatting is not critical at this stage, but the more complete your draft, the more feedback you can get. Do not put your name on the document you upload into PeerScholar if you don’t want the person marking it know who you are.

**Step 5:** You will be given someone’s paper anonymously and you will give them feedback on their work. You have a week to do this. The **feedback is due on Nov 1st, 2021 at 5pm** and it makes up 5% of your mark. This serves three (3) purposes: 1) you give constructive feedback to someone else and learn how to do this in the process; 2) you see someone else’s paper and maybe get ideas of things you might want to include or omit in your own paper; 3) you get feedback from someone else on your writing/clarity/topic. This will be done using peerScholar (student peer review tool) in Quercus. Your 5% of the mark is based on how detailed your feedback is to the other student. See Review paper – Frist draft Assignment on Quercus for submission.

**Step 6:** Submit final paper. The paper is due by **Nov 15th, 2021 5:00 pm EST**. For the final draft please submit via the Review paper- Final Draft Assignment on Quercus.

*Normally, students will be required to submit their course essays to the University’s plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool’s reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University’s use of this tool are described on the Centre for Teaching Support & Innovation web site (*[*https://uoft.me/pdt-faq*](https://uoft.me/pdt-faq)*).*

*LATE PENALTY: 5% per day*

**Midterm Exam 10%**

The midterm exam will be scheduled by the Registrar’s office (**Oct 4th - 30th2021**) and will be worth 10% of your final grade. It will last an hour, it will cover the lecture material up to the midterm date and it will be multiple choice.

**Final Exam 35%**

The Final Exam will be scheduled by the Registrar’s office (Dec 9th – 21st) and will be worth 40% of the final grade (unless, for reasons stated above, it has a higher weight). It will be 3 hours and will cover all course material including tutorials, though it will place emphasis on the material discussed during lecture.

***Notice of video recording and sharing* (Download permissible; re-use prohibited)**  
This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session. Course videos and materials belong to your instructor, the University, and/or other source depending on the specific facts of each situation, and are protected by copyright. In this course, you are permitted to download session videos and materials for your own academic use, but you should not copy, share, or use them for any other purpose without the explicit permission of the instructor. For questions about recording and use of videos in which you appear please contact your instructor.

***Missed Term Work Policy* (NEW for Fall 2021)**

*If you miss term work (including term tests) due to illness you must****self-declare within 48 hours via Acorn****.****Please note it is mandatory for you to fill in the notes field within the self-declaration tool on Acorn to specify what term work you are missing and applicable due dates to be considered****.  For some additional instructions on how to declare illness please review the following resource*[*https://help.acorn.utoronto.ca/blog/ufaqs/how-do-i-declare-an-absence/*](https://help.acorn.utoronto.ca/blog/ufaqs/how-do-i-declare-an-absence/)*.*

*If you are missing term work for another reason including: short-term illness under the care of a Physician or someone affiliated with Health and Wellness, disability reasons, a family death, vehicle accident, essential travel that is not vacation related, or varsity activities must e-mail the course instructor****and****Jennifer Campbell (*[*jac.campbell@utoronto.ca*](mailto:jac.campbell@utoronto.ca)*)* ***in advance or within 48 hours of the term work due date****.  Please note all documentation will be verified for authenticity by Jennifer Campbell and any accommodations (if applicable) will be determined by the course instructor.*

*Please note that we understand that life happens and you may miss term work for valid reasons and we will help you navigate through those situations. Please remain in communication with our departmental admin office as well as your course’s teaching team.*

***AccessAbility 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***

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.

***Equity, Diversity, and Inclusion (EDI) Statement***

*The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another’s differences. U of T does not condone discrimination or harassment against any persons or communities.*