APBI 413 – Stress and Coping in Animals
Fall 2020, 11am – 12:20pm Tuesdays and Thursdays

Instructor
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Teaching Assistant
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Virtual office hours: Wednesdays 4:30 – 5:30pm via Zoom Link

- There will be a waiting room so we will be able to chat with students individually. If you cannot make this time, please contact Kathryn or me to set up an appointment.

Discussion Board in Canvas for Course Questions – please use for questions related to APBI 413 topics or assignments

Course Catalogue Description: Understanding, assessing, and managing stress in farm, companion, captive wildlife, and research animals: sources of stress; behavioural, emotional, cognitive, and physiological responses; effects on growth, reproduction, health.

Pre-requisite:
3rd year standing or higher; APBI 315 and courses in animal physiology and animal behaviour recommended.

Detailed Course Description
The course will seek to explain how animals respond to stress within the context of their natural lives and will focus upon the practical applications of this knowledge to solving real-world problems in the management of animals. Emphasis will be on understanding and assessing stress at the whole animal (organismic) level. The course will be multidisciplinary, emphasising that animals' responses to challenge involve an integrated set of cognitive, emotional, physiological and behavioural components, which reflect an animal's evolutionary background. Systems thinking will be encouraged by discussing the links between stress at the organismic, societal and environmental levels.

Expected Learning Outcomes
Upon completion of this course you will be able to:

- predict what situations animals are likely to find stressful, particularly those that result from the way that people house and manage animals, and choose the types of measurable responses that can be used to assess the degree of stress shown;
- practice a multidisciplinary approach using behavioural, physiological, emotional, and health related measures as well as an understanding of the causal mechanisms underlying animals' stress responses in order to advance successful practical applications of measures of stress;
- evaluate and critically appraise scientific research into stress in animals, and debate the merits of individual research findings;
- respond to popular characterizations of scientific theories and findings about stress in animals; and
- assess and communicate the degree of scientific uncertainty when using research to address practical issues concerning stress in animals that have economic and political impacts.

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Class Structure
We will use a combination of online lectures, small online group discussions and activities, and independent writing and critical analysis throughout this course.

Evaluation
Evaluation emphasizes comprehension of the concepts, critical thinking, and independent research.

	% of Final Grade
1. Scientific article presentation: *Investigating the scientific literature on stress*	**10**
2. Case study analyses: *Understanding and assessing stress*	**30**
3. Invertebrate assignment: *The assessment of stress and coping in invertebrates*	**15**
4. Term paper: *Applying the concepts of stress and coping* Outline Final paper	29 **4** **25**
5. Quizzes (2 quizzes at 4pts each)	**8**
6. Peer review	**8**
Total	**100%**

1. Scientific article presentation: *Investigating the scientific literature on stress*

In this assignment you will identify and present on a non-human animal stressor that you have been witness to or have had an animal in your life experience (e.g. in your companion animal, with an animal at the zoo or aquarium, during a wildlife encounter you had). A short video or photo will be used to demonstrate the animal stressor. Additionally, you will find a current peer-reviewed scientific article that evaluates the specific animal stressor you are highlighting. You will then provide a brief description of the study aims, methods to assess stress, and how the article's conclusions can be used to identify or mitigate the identified stressor.

This assignment will allow you to gain (1) skills in identifying and communicating situations that are stressful for animals, (2) awareness of animal stress issues in scientific literature, and (3) an ability to provide an intellectual discussion on issues related to stress.

Students will earn up to 10 points based on their presentation. Refer to the complete instructions on Scientific Article Presentation on Canvas.

2. Case study analyses: *Understanding and assessing stress*

We will present 5 different case studies throughout the term that focus on physical, environmental and social stressors in a variety of species and across different settings. Case studies will be presented in class (see proposed course schedule below) followed by a small group activity and class discussion. You are required to submit a short essay (3-5 pages) for **2** of the 5 case studies presented in class. You are strongly encouraged to attend all case study classes, as independent of the essays to be submitted as you will gain a breadth of information that can be used in future course assignments. Case studies will be due by 11am one week after in-class case study presentation.

Each essay is worth up to 15 pts, for a total of up to 30 pts. Completing these case studies will allow you to gain skills in (1) identifying stressors, (2) identifying ways to measure stress responses, and (3) critically evaluating benefits and limitations of stress methodologies based on current scientific literature. Refer to the complete instructions on Canvas for more information.

3. Invertebrate assignment: *The assessment of stress and coping in invertebrates*

In this assignment you will work in a group (approx. 4 students) to research an assigned invertebrate and develop an info-poster that showcases the current knowledge on stress and coping in your invertebrate. Info-posters will be presented in a 15-minute presentation to the class at the end of the term. Through this assignment you will (1) gain skills in researching stress in an invertebrate species, (2) utilize critical thinking skills, (3) gain experience working in a group, and (4) use oral communication skills to present your ideas clearly and concisely.

Students will earn up to 15 points in total: 8-points for the info-poster, 4-points for the presentation and 3-points for the peer and self-assessment.

At the beginning of the term you will be given the opportunity to sign up during class for your preferred invertebrate species and assigned presentation date for the info-poster. Please see "Invertebrate Assignment" on Canvas for more information.

4. Term Paper: *Applying the concepts of stress and coping*

To give you an opportunity to utilize the skills practiced throughout the term including the analysis of stress in animals, research skills, critical analysis and written communication, you will write a final term paper on animal stress. You get to choose a topic focusing on an issue related to scientific research into the biology of stress in animals. The topic chosen for the term paper can be chosen from the list provided below or one of your own, however it cannot be on an invertebrate species covered in the Invertebrate assignment. Additionally, case studies in the course will cover a variety of topics related to stress. If your term paper topic happens to align with one of the case study topics, you will not be allowed to complete this case study for one of your chosen case studies. Topics will need to be submitted via Canvas, 'Term Paper Topic Quiz', for approval and feedback. Topic quiz must be completed by no later than September 24th at 11am. The final term paper will be 12-15 pages in length (without references), double-spaced, 12-pt font, 1" margins. Please refer to the complete term paper guidelines posted on Canvas.

The schedule and breakdown of term paper marks is as follows:

Topic selection and approval (due September 24)	
Detailed paper outline (due October 20)	4
Final paper (due Dec 8)	25*

5. Quizzes

To check for knowledge and understanding on topics related to stress presented in class, students will take 2 quizzes worth 4 pts each. The quizzes will be administered through Canvas and will be time-limited. Quizzes will take place on Sept 22 and Oct 6. More information will be given in class.

6. Peer review

Each student will be assigned to peer-review 4 other student's scientific article presentations. It is your responsibility to be in class on the days that you are assigned to peer review other student's presentations. Peer reviews are due 24h after the class. See Canvas "Peer Review Assignment" for further instructions and schedule.

General Course Information

Course Learning Materials: There will be no assigned textbook. Instead students will be assigned specific readings from review articles and book chapters. Course readings will be posted on Canvas and updated throughout the term.

Late Assignments: All assignments are due on the specified due date and time. Late assignments will not be accepted.

Absences: If you have physical illness or experience emotional stresses that cause you to miss a significant number of classes or any assignments, please contact Kristen as soon as possible. Absences from classes will be granted at Kristen's discretion. There are no make-up opportunities for missing a group assignment, presentations, or in-class activities.

Course Feedback: You will have two opportunities to offer feedback on your experience with the course: a midterm course evaluation and the official UBC course evaluation at the end of the term. Resulting feedback from the midterm evaluation may be then applied to the remainder of the course. Your feedback is valued greatly so we ask that you please complete the evaluations.

Academic Integrity: Please remember the importance of academic integrity. Please be aware of UBC's policy on academic integrity and plagiarism: http://learningcommons.ubc.ca/resource-guides/avoid-plagiarism/?login. All work completed in this class should be your original work. Academic misconduct of any kind will not be tolerated. The consequence for academic misconduct will includes a variety of disciplinary measures (http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,54,111,959).

University Values and Policies:
UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of emotional and physical violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious and cultural observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold

the highest academic standards in all of their actions. Details of the policies and how to access support are available here (https://senate.ubc.ca/policies- resources-support-student-success).

Online Learning and the Sensitivity of Course Topics:
During this pandemic, the shift to online learning has greatly altered teaching and studying at UBC, including changes to health and safety considerations. Keep in mind that some UBC courses might cover topics that are censored or considered illegal by non-Canadian governments. This may include, but is not limited to, human rights, representative government, defamation, obscenity, gender or sexuality, and historical or current geopolitical controversies. If you are a student living abroad, you will be subject to the laws of your local jurisdiction, and your local authorities might limit your access to course material or take punitive action against you. UBC is strongly committed to academic freedom, but has no control over foreign authorities (please visit http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,33,86,0 for an articulation of the values of the University conveyed in the Senate Statement on Academic Freedom). Thus, we recognize that students will have legitimate reason to exercise caution in studying certain subjects. If you have concerns regarding your personal situation, consider postponing taking a course with manifest risks, until you are back on campus or reach out to your academic advisor to find substitute courses. For further information and support, please visit: http://academic.ubc.ca/support-resources/freedom-expression.

Proposed topics to be covered – schedule subject to modification

Week	Date	Topic	To Do Before Class / Due
1	Sept 10	Introductions, course overview What is stress?	Introductory post on Canvas Read Moberg 2000
2	Sept 15 Sept 17	Stressors Behavioural responses to stress	 Read Rushen 2000
3	Sept 22 Sept 24	Physiological responses to stress Scientific article presentation day	Take Quiz 1 Read Mormede et al. 2007, Lane 2006 Term paper topics due
4	Sept 29 Oct 1	Pain and Stress Pain and Stress	Reading TBA
5	Oct 6 Oct 8	Scientific article presentation day Stress in wildlife (Case study #1)	Quiz 2
6	Oct 13 Oct 15	Scientific article presentation day Stress in entertainment animals (Case study #2)	 Case Study #1 due
7	Oct 20 Oct 22	Stress in companion animals (Bailey/Sasha) Stress in companion animals (Case study #3)	Outlines due Case Study #2 due

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8	Oct 27 Oct 29	Scientific article presentation day Scientific article presentation day	 Case Study #3 due
9	Nov 3 Nov 5	Guest lecture: Stress in farm animals Stress in farm animals (Case study #4)	
10	Nov 10 Nov 12	Guest lecture: Stress in laboratory animals Stress in laboratory animals (Case study #5)	 Case Study #4 due
11	Nov 17 Nov 19	Invertebrate stress (group activity) Work in groups outside of class	Read Horvath et al. 2013 Group contracts due; Case Study #5 due
12	Nov 24 Nov 26	Group presentations - invertebrate stress Group presentations - invertebrate stress	
13	Dec 1 Dec 3	Group presentations - invertebrate stress Group presentations - invertebrate stress	 Info-posters submitted by 11am
	Dec 8		Term paper due Dec 8