APBI 490 (APBI 313)

# experimental analysis of animal behaviour

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## Acknowledgement

I want to acknowledge that UBC’s Point Grey campus and endowment lands are the traditional, ancestral, unceded territory of the Musqueam. The hən̓q̓əmin̓əm̓ *(h-elk-kwah-MEEN-um)* speaking Musqueam people have, and have always had, a distinct understanding of animals that has been passed from one generation to the next and we are grateful for the opportunity to learn and work on this land. I would also like to acknowledge that as we are meeting remotely today, we are in places near and far, and we acknowledge the traditional owners and caretakers of those lands that we are able to live (work, and play) on.

## Course Information

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| **Course Title** | **Course Code Number** | **Time** | **Credit Value** |
| Special Topics: Experimental Analysis of Animal Behaviour | APBI 313 (Graduate section AANB 550) | Tuesday and Thursday  9:30-11am | 3 credits |

Credit exclusion: Credit will be granted for only one of APBI 313 (this course) or PSYCH 363

Pre-requisites and core-requisites: None.

## Contacts

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| **Course Instructor(s)** | **Contact Details** | **Office Hours** |
| Course Instructor:  Dr Sasha Protopopova (she, her, hers) | a.protopopova@ubc.ca | Rather than creating restrictive office hours, the instructors are happy to meet with students whenever it is mutually convenient. Send an email. |
| Teaching Assistant: TBA | TBA |

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## Learning Activities

Students in animal welfare require knowledge about what guides the behaviour of individual animals. In this course, we will cover the proximate mechanisms behind animal behaviour, with a focus on motivation and learning. Using case studies, we will cover complex concepts within Pavlovian and operant control of behaviour of individual animals as well as the ways in which various behavioural principles interact to create complexity in behaviour (i.e., animal cognition) and contribute to our understanding of animal welfare. You will become acquainted with the individual-subject research methods used in the scientific study of proximate causes of behaviour and the basic theories and principles of how and why animals do what they do. The key activities in the course are (1) learning complex principles of animal learning and motivation, (2) communicating an understanding of these principles through discussion, in-class probes, written case studies, and online quizzes.

The class will meet twice per week synchronously. Classes will begin with a case study of either a common behavioural problem encountered by handlers or an interesting phenomenon in animal cognition. The case study will serve as the basis of discussion and lecture on the specified topic. The lecture portion of each class will focus on presenting unifying principles and theories in animal learning and introduce the students to various topics in the field of experimental analysis of animal behaviour. Some classes will begin with a short probe, which will test the student’s understanding of the topic of the lecture from the previous class and/or the required reading. At the end of the semester, the lowest 5 probe grades will be dropped.

**Graduate Section:** Students will be expected to come to class prepared to discuss the required reading of influential research papers in the topic of animal learning during each class. All of the assigned research papers will be available online at least one week prior to the class.

Students will also try their hand at incorporating the principles of behaviour and learning to their personal research interest. This semester-long project will consists of the student identifying a topic of interest, assembling the relevant literature, identifying a unique research project , preparing a research proposal. This paper will go through several stages of review and edits prior to earning a final grade.

## Learning Materials

* Behavior Analysis and Learning. (2004) W. David Peirce and Carl D. Cheney, Third Edition (ISBN 0-8058-4489-9) (Free for an online copy/ $20 for a hardcopy);
* Assigned reading prvided by the instructor prior to some classes as indicated on the schedule (TBA);
* Lecture slides will provide examples and details on the topics;
* Comments and feedback on assignments by the instructors are a key element of the learning materials.

## Schedule

Please note that dates and topics may be updated as the semester progresses. If this happens, announcements will be made in class and online. Graduate Section (GS) reading TBA.

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| **Week** | **Case Study** | **Lecture Topic** | **Reading** |
| 1 | Feces-throwing in a captive chimpanzee | *Introduction; levels of selection and functional analysis of behaviour* | Ch.1 |
| 2 | Cont. | *Single-subject research designs* | Ch. 2  GS TBA |
| 3 | Accidental morphine overdose in laboratory rats | *Reflex relations; Pavlovian conditioning* | Ch. 3  GS TBA |
| 4 | Coyote control and taste aversion | *More on Pavlovian conditioning; Biological context of conditioning* | Ch. 14  GS TBA |
| 5 | Social cognition (perspective taking) in dogs | *Operant behaviour; positive reinforcement* | Ch. 4  GS TBA |
| 6 | Unexplained aggression: Orca drowns its trainer | *Schedules of reinforcement; extinction* | Ch. 5  GS TBA |
| 7 | Dog leash reactivity | *Negative reinforcement; aversive control* | Ch. 6  GS TBA |
| 8 | Pessimism/ optimism in animals | *Stimulus relations* | Ch. 8  GS TBA |
| 9 | Cat predation | *Motivating operations* | No textbook  GS TBA |
| 10 | Capuchin token economy | *Conditioned reinforcement* | Ch. 10  GS TBA |
| 11 | African Grey parrot counting | *Complex stimulus control; Pavlovian-operant interactions* | Ch. 7  GS TBA |
| 12 | Husbandry animal training | *Choice and preference; quantitative law of effect* | Ch. 9  GS TBA |
| 13 | Impulsive pigeons | *Delay discounting; behavioural economics* | Ch. 9  GS TBA |

## Learning Outcomes

At the end of this course, the student will be able to:

1. Develop an appreciation of the interesting ways in which basic learning principles result in complex animal behaviour as evidenced by class participation in discussion, in-class probes, case studies, and online quizzes;
2. Effectively integrate ideas from the lecture material, book chapters, and assigned journal articles to compose an evaluation of the determinants of animal behaviour case studies;
3. **GRADUATE SECTION**: Compose a research proposal on a topic of your choosing integrating your research interests and animal learning using a single-subject experimental design.

## EVALUATION

Evaluation will include probes, quizzes, written case studies, and participation to assess the degree of achievement of the learning objectives, as follows:

1. In-class probes (best 10 out of 14, 2 marks each) 20
2. Online quizzes (best 6 out of 10, 5 marks each) 30
3. Written case-studies (4, 15 marks each) 40
4. Participation in class 10

**UNDERGRADUATE TOTAL 100**

1. Research proposal
   1. Literature review 20
   2. Research design 20
   3. First draft 20
   4. Final draft 20

**GRADUATE TOTAL 180**

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### PROBES

There will be 15 probes conducted during class, each worth 2 points. Part of the purpose of these probes is to provide credit for class attendance; therefore, which classes they will be given on will not be announced in advance. You will typically receive the first point for turning in any attempt at answering the probe question, and the next point for a correct response. Probes will range from requiring one word to a few sentences to complete, and will cover the assigned readings for and/or the material presented during the class on which they are administered.

### ONLINE QUIZZES

There will be 10 online quizzes, each worth 5 points. The best 6 out of 10 will be used for the final mark. An online quiz will be due on that day, before class begins. The online quiz will include multiple-choice questions on the material that will be needed when discussing and answering questions about the case studies. The online quizzes are intended to help you identify the information that you need to review.

### EXAM CASE STUDIES

Each class will begin with discussion of a specific case study. At four times during the semester, instead of an exam, the instructor will pick one of the discussed case studies and construct additional questions on the same case study. These questions will form the exams. There will be four such written case studies throughout the semester, each worth 15 points. The case studies will consist of short and long answer questions, in which the students will utilize their knowledge of behaviour principles to provide an analysis of the situation.

Each case study will focus primarily on the information covered since the previous case study; however, as the subject matter covered by the class is cumulative, doing well on later case studies will require mastery of the key concepts presented since the beginning of the semester.

### Participation

Class participation will be marked throughout the term thorugh in-class discussion. Student are expected to come to class having read all required readings and prepared to discuss the topic. Only respectful and constructive discussion will be tolerated.

### GRADUATE SECTION ONLY- RESEARCH PROPOSAL

There will be one final written project consisting of a research proposal. You will select a topic of your choosing in animal behaviour and synthesize your knowledge gained from the course to develop a research proposal. The proposal will consist of a short literature review to identify a gap in research as well as a single-subject design methodology to address this gap. Students will be encouraged to identify a granting agency and submit the proposal at the end of the semester, if approved by their supervisor. Students will submit a 1) literature review, 2) methodology, 3) a first draft, and 4) a final draft for 20 points each at specific times throughout the term. The total of the 80 available points will be added to the points accumulated from the probes, quizzes, case studies, and participation for the final mark.

## University 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 sexual 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 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 availableon[**the UBC Senate website**](https://senate.ubc.ca/policies-resources-support-student-success)**.**

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>.

## Academic Integrity

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President’s Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.