APBI 490-002

# Advanced Topics in Applied Biology:

# 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** | **Room** |
| Advanced Topics: Experimental Analysis of Animal Behaviour | APBI 490 (Graduate section AANB 550) | Tuesday and Thursday  9:30-11am | 3 credits | Food, Nutrition, & Health, room 60 |

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: Amin Azadian |  |

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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.

## 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);
* 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.

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| --- | --- | --- | --- |
| **Dates** | **Case Study** | **Lecture Topic** | **Reading** |
| Sep 10 |  | *Introduction and philosophy* | Ch.1 |
| Sep 14  Sep 16 | Barking in animal shelters  Shelter cat b-mod | *Single-subject research designs;*  *Reflex relations+ Pavlovian conditioning* | Ch. 2 |
| Sep 21  Sep 24 | Dog training  Zoo enrichment | *More on Pavlovian conditioning;*  *Biological context of conditioning* | Ch. 3 |
| Sep 28  NO CLASS ON Sep 30 |  | *Review* | Ch. 14 |
| Oct 5 |  | *EXAM CASE STUDY 1* |  |
| Oct 7  Oct 12 | Cows peeing in toilets | *Operant behaviour;*  *Extinction and schedules of reinforcement* | Ch. 4 |
| Oct 14  Oct 19 | Dog personality | *Motivating Operations; Negative reinforcement* | Ch. 5 |
| Oct 21  Oct 26 | Animal management | *Punishment;*  *Aversive control* | Ch. 6 |
| Oct 28 |  | *EXAM CASE STUDY 2* |  |
| Nov 2  Nov 4 | Animal cognition | *Stimulus relations;*  *More on stimulus control* | Ch. 8 |
| Nov 9  NO CLASS ON Nov 11 | African Grey parrot “Alex” counting | *Complex stimulus control* | Ch. 8 |
| Nov 16  Nov 18 | Animal economies | *Conditioned reinforcement;*  *More on conditioned reinforcement* | Ch. 10 |
| Nov 23 |  | *EXAM CASE STUDY 3* |  |
| Nov 25  Nov 30 | Cooperative care | *Choice and preference; Impulsivity* | Ch. 9  Ch. 11 |
| Dec 2 | Speaking apes | *Stimulus equivalence* | Ch. 12 |
| Dec 7 |  | *EXAM CASE STUDY 4* |  |

## 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 and book chapters to compose an evaluation of the determinants of animal behaviour case studies;

## 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 12, 5 marks each) 30
3. Written case-studies (4, 12.5 marks each) 50

**TOTAL 100**

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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 12 online quizzes, each worth 5 points. The best 6 out of 12 will be used for the final mark. An online quiz will be released after each topic, but the quizzes in a given “section” (the lectures between exams) will all be due the day of the exam. This will allow the students more flexibility to take the quizzes as they are studying for the exams. 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 a case study, similar to the one discussed in class. 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 primarily of 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.

The exam will be administered through Canvas, online. Students can take the exam at home or in the classroom (on their own computer). The exams are open book as they will not be testing any memorization; instead, the exams are set to test the understanding behind learned concepts. The exam will be released through Canvas at the beginning of the class period and will be due at the end of that class period.

### 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.

### COVID-19 Safety

For our in-person meetings in this class, it is important that all of us feel as comfortable as possible engaging in class activities while sharing an indoor space. Non-medical masks that cover our noses and mouths are a primary tool to make it harder for Covid-19 to find a new host. Please wear a non-medical mask during our class meetings, for your own protection, and the safety and comfort of everyone else in the class. If you have not yet had a chance to get vaccinated against Covid-19, vaccines are available to you, free and on campus [https://covid19.ubc.ca/]. The higher the rate of vaccination in our community overall, the lower the chance of spreading this virus. You are an important part of this community. Please arrange to get vaccinated if you have not already done so.

## 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>.

## COVID-19 SAFETY

Provincial Health Orders and UBC policy now mandate masks in all indoor public spaces on campus. These spaces include classrooms, residence halls, libraries, and common areas. Students who wish to request an exemption to the indoor mask mandate must do so based on one of the grounds for exemption detailed in [the PHO Order on Face Coverings (COVID-19)](https://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/covid-19/covid-19-pho-order-face-coverings.pdf). Such requests must be made through the Center for Accessibility (Vancouver campus).

After review, students that are approved for this accommodation will be provided with a letter of accommodation to share with faculty members teaching courses in which they are registered. In the intervening time, these students are welcome in the class.

Mask wearing protects you as well as others in your environment. Let’s do everything we can as a community to stop the spread of this virus.

## 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.