Biology 472.3 – ANIMAL BEHAVIOUR
Sept 2013

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Lab Demonstrator: Marianna Horn
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Office Hours: drop in or by appointment

Calendar Description: Fundamental concepts in animal behaviour. An introduction to the form, control and adaptive significance of animal behaviour.

Learning Outcomes: Students will gain a comprehensive understanding of the behavior of animals. They will understand the proximate controls of behavior including the role of hormones, the animal's genotype and the animal's environment in the development of behavior. Much of our work will take an evolutionary approach, consequently, we focus much of our discussion on the adaptive significance of behaviour, emphasizing animal communication, social behavior, territoriality, sexual selection and mating systems.

Lecture Topics:
What is Animal Behaviour?
The Proximate/Ultimate Dichotomy
Approaches to the Study of Behaviour (Ethology, Comparative Psychology, Neurobiology)
Hypothesis Testing in Behavioural Research
Classification and Description of Behaviours
Behaviour and Evolution
The Genetics of Behaviour
Learning and Ontogeny of Behaviour
Behavioural Endocrinology
Animal Senses
Biological Rhythms, migration
Foraging Behaviour
Communication

Social Behaviour
Dominance and Territoriality
Sexual Selection and Mating Systems
Parental Care

Required Readings (Natural Science Library):

Miller, E.H. 1998. Description of bird behavior for comparative purposes. Current Ornithology 5:347-394.

Drummond, H. 1981. The nature and description of behavior patterns. In: Perspectives in Ethology 4. Note only pages 1-12 are mandatory.

Altmann, J. 1974. Observational study of behavior: sampling methods. Behaviour 49:227-266.

Brown and Donhauer 1988. Analysis in Behavioural Ecology. Sinauer. pp. 110-122.

Reference Texts:

Dugatkin, L.A. 2013. Principles of Animal Behavior. 3rd Edition.WW Norton and Co.

Grier, J.W. and T. Burk. 1992. Biology of Animal Behaviour. 2nd Edition, Mosby.

Alcock, J. 2009. Animal Behavior: An Evolutionary Approach. 9th Edition, Sinauer.

Drickamer, L.C., Vessey, S.H. and Meikle, D. 2002. Animal Behavior: Mechanisms, Ecology and Evolution. WMC Brown Publishers.

Goodenough, J., McGuire, B., and Jakob, E. 2010. Perspectives on Animal Behavior. 3rd Edition. John Wiley and Sons.

Martin, P. and Bateson, P. 1986. Measuring Behaviour: An Introductory Guide. Cambridge University Press.

Journals:

Animal Behaviour
Ethology
Behavioural Ecology and Sociobiology
Behavioural Ecology
Journal of Comparative Psychology
Behavior

Evaluation:	**Mid-term Exam** (2 hr long during lab of Oct 14)	20%
	Final Exam	40%
	Project (see attached sheet)	20%
	Statement of Intent (see attached sheet – Due Oct 7)	5%
	Lab reports (2 reports each worth 7.5%)	15 %

Note: The midterm will be given during a lab period and will cover lecture and lab material. The final Exam is comprehensive for the whole course and is required coursework. Late assignments will be penalized by 10% per day (except for final project which MUST be on time).

Students are required to read guidelines on academic misconduct and appeal procedures at http://www.usask.ca/university_secretary/honesty/policies_and_procedures.php

PROJECT OBSERVING ANIMAL BEHAVIOUR

General Remarks:

1. All projects are individual efforts, i.e., no group projects.
2. You should begin planning your project immediately. There are lab periods at the end of the course that are available for field work.
3. A statement of intent for your project is to be handed in **Oct 7.**
4. The poster report is to be displayed, and relevant written material handed in, on **Nov 25..** You will be given suggestions in class for how to prepare the poster.
5. The evaluation will be based primarily on how well your research is designed, not on the number of hours you spend watching the animal, or how attractive your poster may be. Although you may not be able to answer your question, your project should be designed so that it would be possible to answer it. Show that you understand how a research project should be conducted.
6. An exhaustive literature review is not necessary, but you should be aware of at least some major **primary** source references (i.e., journal articles not textbooks, reviews or websites) on the subject.
7. The lab demonstrator is available for counselling.

Suggested Procedure:

1. Choose an area of behaviour that interests you.
2. Formulate a question (the simpler the better).
3. Choose a study animal that is well suited for investigating the question you are attempting to answer.
4. Find, or create, a population of your study animal.
5. Familiarize yourself with the behaviours of your study subjects.
6. Design a method of sampling the behaviours (it must be quantitative).
7. Make the observations.
8. Write the report and prepare the poster (see Biology hallways for examples).

The Poster:

The poster should include the following sections:

Introduction:	State your objectives. What question (hypothesis) are you investigating? Tell the reader what is known about your study subject and the subject area.
Study Site:	Where is it? What features of the environment are relevant to your study?
Methods:	How and when did you conduct the observations? List any equipment used. What sampling method did you use?
Results:	Present an ethogram of the behaviours you quantified. Present your data (summarized, not in raw form) in tables and/or figures.

Discussion: Interpret your results. What is the relevance of your study to the biology of the animal and/or the science of ethology? Discuss potential biases and problems with how you collected the data or how you interpreted your findings. Do your results agree with what is known in the literature?

Literature Cited: List all the literature that you cite in your poster. Make sure that the complete reference is given (e.g., volume number and page numbers of each article).

******The text of the poster should also be handed in separately so that we can make comments (due on same day as poster)***

Note: Marks will be taken off if you do not follow these instructions for preparation of the poster. Your lab demonstrator is the person to whom you should go to ask questions about your project.

Statement of Intent

Prepare a one to three page (double spaced) "Statement of Intent" about the project you are planning to carry out to be handed in no later than **Oct 5.** We encourage you to hand it in even earlier so you can get a head start on the project. This requirement will allow us to check that projects are suitable and have a reasonable chance of success. The statements will be worth 5% of your final mark, and **must be approved** before you continue with your project. Statements of intent that are totally unsuitable will be returned, ungraded, for revision. The revised version can then be given a maximum of only 3 marks (instead of 5).

The statement of Intent should include the following information:

1. The biological question (hypothesis) you are asking, stated as clearly as possible.
2. The organism you are planning to study.
3. The general methods you intend to use.
4. A list of some key references on the subject of your question.

LAB OUTLINE
Biology 472.3 2013
Mondays 1:30-5:30, Room 307

Date	Subject	Preparation	Requirements
Sept 9	no lab		
Sept 16	Training videos	read Drummond (1981) Miller (1988), and Altmann (1974) Brown and Downhower (1988)	none
Sept 23	walking tour of campus & planning for the project	Make sure you are prepared for being outdoors for a few hrs. (i.e., warm clothes & boots); bring binoculars if you have them	no formal report
Sept 30	Ethogram of the crayfish	read Drummond (1981) and Miller (1988); read handout on the crayfish	lab report
Oct 7	Thanksgiving	no lab	
Oct 14		**MID-TERM EXAM**	
Oct 21	Guppies	read handout	lab report
Oct 28- Nov 18	Project	no labs	
Nov 5	Poster session	posters and written text	attendance, posters & written report