BEHAVIOURAL ECOLOGY

Psychology 3T03

Time: Monday and Wednesday, Thursday 1:30-2:20

January 4 – April 6, 2017 (Term 2)

Location: AB102

Instructor: Dr. Sigal Balshine

Contact Info: Office - PC 309

Email: sigal@mcmaster.ca

Office Hours: 2:30-3:30 on Mondays, please make an appointment

Web page: Psych3T03 on Avenue to Learn Note: Please contact us via Avenue and email. You can use AVENUE to ask questions. Please use email to set up appointments to meet up with your TAs in their office hours. They will tell you where to meet them if you need to come in.

TAs: Evan Borman, Jessica Miller, Lucas Greville

TA Office Hours (by appointment):

Mondays 12:30-1:30 (Jess) millej16@mcmaster.ca

Wednesdays 2:30-3:30 (Evan) bormaned@mcmaster.ca,

Friday 1:30-2:30 (Lucas) grevillj@mcmaster.ca

Textbook: Animal Behavior (2013, 10th edition).

J. Alcock, Sinauer Associates Inc., Sunderland, Massachusetts, (ISBN 13: 978-0878939664).

Objectives: Behavioural Ecology is a field devoted to understanding animal behaviour in terms of evolutionary and ecological theory. As a field, behavioural ecology emerged from a synthesis of many scientific disciplines including ethology, evolutionary biology, psychology, anthropology, zoology and population genetics. The aim of this course is to further build on the theoretical foundations of the 2nd year Animal Behaviour and Evolution courses Psych 2TT3 and PNB 2XC3. In this course we will cover advanced behavioural ecology theory using empirical examples and focusing on key research findings. During the course we will examine various aspects of animal behaviour and consider why such behaviour evolves, and how this behaviour may enable animals to adapt to their environments. By the end of the term students should be able to: understand and describe many important theories, empirical studies, and be able to critically analyze and discuss the research and issues of this discipline. Note, this course is NOT centrally concerned with *Homo sapiens*, and will take a comparative approach to the study of animal behaviour. Students seeking a course that mainly focus on human behaviour are advised to consider taking a course devoted to human evolution and behaviour such as Psychology 3F03 or Anthropology 2E03.

Evaluation: Grades will be based on 2 midterms, 2 in-class workshops, a science outreach project and a 2.5-hr registrar-scheduled final exam. Your best workshop mark out of the two will be used to calculate your mark and will be worth 2.5% of your final grade. Because each workshop is interactive **no make up is possible**. The science outreach project will also be worth 2.5%. Each of the 2 in-class midterms (**January 26th**, and **March 9th**) will be worth 25%. The final exam will be worth 45% of your final grade. The exam and midterms will consist of long (essay), short answer (definitions, short phrases, or paragraphs) and/or multiple-choice/true false questions. The questions will be based on both the readings assigned for class and on the material covered in the lectures. Good marks will require thorough familiarity with and comprehension of the content covered in the textbook, readings, and lectures. Please bring a pencil, ruler and calculator to each exam. NOTE:

If any exam does not take place on the scheduled date due to weather, facilities, or any other unforeseen circumstance, THE EXAM WILL TAKE PLACE AT OUR NEXT MEETING.

Workshops (worth 2.5%)

We will have two in class workshops (**Jan 19th and March 2nd**). You can think of workshops as an in class collaborative project that will be collected at the end of the class. You will be given a topic and asked three questions about this topic. You will answer the first question individually, the second question in pairs and the third answer as a group. This is a very low pressure, relaxed exercise. There is no need to study beforehand but a familiarity with the course material will be helpful and the workshop will serve as exam preparation. I will use your best of two workshop marks towards your final grade.

Science Outreach Project (worth 2.5%)

You will be assigned one of a number of possible themes from the course content (e.g. sexual conflict, cooperation or parent offspring conflict). You will then be asked to produce 1-3 slides that provide an explanation for why everyone ought to care about this topic/theory/knowledge. I challenge you to explain in layman terms how your topic applies to human behaviour, to conservation or to how we live our lives

Please limit yourself to 1-3 power point slides, in which you will put an applied spin on your assigned topic. This slide or slides should explain the "so what factor" and "why should we care" about this topic to a lay audience. Please make sure that these slides would be accessible to a non-scientist but assume your audience contains educated adults. I will provide you with 1 or 2 examples of what I am looking for, before assigning you your topic. With your permission, I will choose 1 or 2 of the best examples to share at the end of class. You will be asked to submit your slide(s) to an AVENUE dropbox by the assigned due date (note everyone's due date will differ).

Assigned readings will be available as *.pdf* files on the class webpage in AVENUE. Lecture notes will also be found there, and will be available in the morning before the class. I will try to get the notes up a few hours before class.

Feedback on tests and other course-related materials will also be placed on the Psych 3T03 site hosted by AVENUE to Learn. Please post questions here.

McMaster's Grading Scale:

Term tests will assess knowledge and comprehension of lectures prior to the test and of readings *up to and including* those assigned for the test. There will be no "make-up tests". If you miss 1 exam, please fill out the excusing (e.g., medical) documentation with your Dean of Studies, and your term mark will be based on the other exam with appropriate re-weighting.

Policy Reminder: The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

The instructor reserves the right to adjust final marks up or down, on an individual basis, in light of special circumstances and/or the student's total performance in the course. It is your responsibility to ensure that you have met all prerequisites listed in the McMaster calendar for this course. If you lack any prerequisites for this course, the Department may cancel your registration at any time.

Please note the Statement on Academic Ethics and the Senate Resolutions on Academic Dishonesty as found in the Senate Policy Statements distributed at registration and available in the Senate Office. Any student who infringes one of these resolutions will be treated according to the published policy. Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or

suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, at http://www.mcmaster.ca/policy/Students- AcademicStudies/AcademicIntegrity.pdf

The following illustrates only two forms of academic dishonesty: 1. Plagiarism, e.g., the submission of work that is not one's own or for which other credit has been obtained. 2. Copying or using unauthorized aids in tests and examinations

90-100	85-89	80-84	77-79	73-76	70-72	67-69	63-66	60-62	57-59	53-56	50-52	0-49
A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Tentative Course Schedule

Week	Dates	Topics	Readings
1	January 4 January 5	Introduction Evolution & Nat Selection Levels of Analysis and Pillars	Assigned Reading 1 Chapters 1 & 10 Chapters 11-13 optional
2	January 9 January 11 January 12	Evolution of Sex Sex Allocation Sexual Selection & Pair Dynamics	Assigned Reading 2 Assigned Reading 3 Chapter 7
3	January 16 January 18 January 19	Mating Competition Alternative Mating Strategies **Workshop 1.**	Chapters 6 & 7 Chapter 7
4	January 23 January 25 January 26	Sperm Competition Mate Choice & Cryptic Female Choice **Midterm 1.**	Assigned Reading 4 Assigned Reading 5
5	January 30 February 1 February 2	Sexual Conflict Class Debate: Ethics of Using Animals in Research Mating System Evolution	Assigned Reading 6 Chapter 8

6	February 6 February 8 February 9	Family Dynamics Parental Care (part 1) Parental Care (part 2)	Chapter 9 Chapter 9 Chapter 9
7	February 13 February 15 February 16	Parent-Offspring Conflict Parent-Offspring Conflict Sibling Rivarly (part 1)	Chapter 9 Assigned Reading 7 Assigned Reading 8

8	February 20 February 22 February 23	READING WEEK No Classes	
9	February 27 March 1 March 2	Sibling Rivalry (part 2) Kinship & Kin Recognition **Workshop 2.**	Chapter 9 Chapters 2 & 3
10	March 6 March 8 March 9	Living in Groups Conflict in Social Groups **Midterm 2.**	Chapter 5 Assigned Reading 9
11	March 13 March 15	Cooperation 1	Chapters 2 & 3 Assigned Reading 10

	March 16		
12	March 20 March 22 March 23	Cooperation 2	Chapters 2 & 3
13	March 27 March 29 March 30	Local & Global Change & Animal Behaviour Class Hike Review	Assigned Reading 11
14	April 3 April 5 April 6	Trip to the Toronto Zoo Class Debate: Future of Zoos Exam Review	Assigned Reading 12

Assigned Readings

1. Reading for January 4th (Evolution)
Grant PR & Grant BR 2006. Evolution of character displacement in Darwin's finches. *Science* 313: 224-226.

2. Reading for January 9th (Evolution of Sex)
West SA, Lively CM, & Read AF 1999. A pluralist approach to sex and recombination. *Journal of Evolutionary Biology*, *12*(6), 1003-1012.

3. Reading for January 11th (Sex Ratio Allocation)
Heinsohn R, Langmore, N, Cockburn A & Kokko H 2011. Adaptive Secondary Sex Ratio Adjustments via Sex-Specific Infanticide in a Bird. Current Biology, 21: 744-1747.

4. Reading for January 23rd (Sperm Competition)
Wedell, N., Gage, M. J., & Parker, G. A. 2002. Sperm competition, male prudence and sperm-limited females. *Trends in Ecology & Evolution*, *17*(7), 313-320.

5. Reading for January 25th (Cryptic Female Choice)
Pizzari T & Birkhead TR 2000. Female feral fowl eject sperm of subdominant males. *Nature* 405: 787-789.

6. Reading for January 30th (Sexual Conflict)
Chapman T, Arnqvist G, Bangham J & Rowe L 2003. Sexual conflict *Trends in Ecology and Evolution* 12: 255-259.

7. Readings for Feb 8th (Parent-Offspring Conflict)
Kilner, R. 1997. Mouth colour is a reliable signal of need in begging canary nestlings. *Proceedings of the Royal Society, Series B* 264: 963-968.

8. Readings for Feb 9th (Sibling Rivalry)
Mock, DW 1984. Siblicidal aggression and resource monopolization in birds. *Science* 225: 731–733.

9. Reading for March 8th (Conflict in Social Groups)
Clutton-Brock TH, Brotherton PNM, Russell AF, O'Riain MJ, Gaynor D, Kansky R, Griffin A, Manser M, Sharpe L, McIlrath GM, Small T, Moss A & Monfort S 2001. Cooperation, conflict and concession in meerkat groups. *Science* 291(5503): 478-481.

10. Reading for March 15th (Cooperation)
Komdeur J, Huffstadt A, Prast W, Castle G, Mileto R & Wattel J. 1995. Transfer experiments of Seychelles warblers to new islands: changes in dispersal and helping behaviour. *Animal Behaviour* 49: 695-708.

11. Reading for March 27th (Behaviour, Conservation and Global Change)
Bell A, 2004. An endocrine disrupter increases growth and risky behaviour in three-spined sticklebacks. *Hormones and Behaviour* 45: 108-114.

12. Reading for April 5th (Should we have zoos?)
Swaisgood RR & Shepherdson DJ 2005. Scientific Approaches to Enrichment and Stereotypies in Zoo Animals: What's Been Done and Where Should We Go Next? *Zoo Biology* 24:499–518.