

BEHAVIOURAL ECOLOGY

Psychology 3TT3

Time: Mondays and Thursday 3:30-4:20 and Tuesdays 4:30-5:20

January 3 – April 3, 2012 (Term 2)

Location: MDCL-1105

Instructor: Dr. Sigal Balshine

Contact Info: Office - PC 304

Email: sigal@mcmaster.ca

Office Hours: 4:30-5:30 on Mondays, by appointment only

Web page: Psych3T03 on Avenue to Learn

Course Email: psych3t3@gmail.com

Note: Please contact us primarily using this course email. Use this email to ask questions (these will be answered by email) or to set up appointments to meet up with your TAs in their office hours.

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|-------------|----------------|---------------------------|
| TAs: | Karen Cogliati | cogliakm@mcmaster.ca |
| | Paul Fraccaro | fraccap@mcmaster.ca |
| | Erin McCallum | erin.s.mccallum@gmail.com |
| | Joelle Thorpe | thorpejb@mcmaster.ca |

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| TA Office Hours (by appointment): | Mondays | 14:30-15:30 (Karen) |
| | Tuesdays | 15:30-16:30 (Paul) |
| | Thursdays | 14:30-15:30 (Erin) |
| | Thursdays | 16:30-17:30 (Joelle) |

Textbook: Animal Behavior (2009, 9th edition).

J. Alcock, Sinauer Associates Inc., Sunderland, Massachusetts, (ISBN 978-0-87893-225-20).

Objectives: Behavioural Ecology is a field devoted to understanding animal behaviour in terms of evolution and ecology. The aim of this course is to further build on the theoretical foundations of the 2nd year Animal Behaviour and Learning Course Psych 2TT3. In this course we will cover some basic but mostly 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. As a field, behavioural ecology emerged from a synthesis of many scientific disciplines including ethology, evolutionary biology, psychology, anthropology, zoology and population genetics. 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 3F3 or Anthropology 2E03.

Evaluation: Grades will be based on 2 midterm exams, 2 in-class workshops and a 3-hr registrar-scheduled final exam. Each workshop is worth 2% of your final grade. Because each workshop is interactive no make up is possible. Each of the two in-class midterms (**February 6th**, and **March 6th**) will be worth 23% of your final mark. The final exam will be worth 50% of your final grade. The exam and midterms will consist of long (essay), short answer (phrases or paragraphs) and/or multiple-choice questions. The questions will be based on the 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 of the textbook, readings and the lectures. Please bring a pencil 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.

McMaster's Grading Scale:

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|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| 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 |

Term tests will assess knowledge and comprehension of lectures prior to the test night and of readings *up to and including* those assigned for the test night. 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/senate/academic/ac_integrity.htm

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

Tentative Course Schedule

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.

| Week | Dates | Topics | Readings |
|------|---|---|--|
| 1 | January 3, January 5, | Introduction Evolution Guest Lecture | Assigned Reading |
| 2 | January 9, January 10, January 12, | Natural Selection Levels of Analysis Evolution of Sex Sex Allocation | Chp. 1 & 2 Assigned Reading Assigned Reading |
| 3 | January 16 January 17, January 19, | Sexual Selection 1. Alternative Mating Strategies Sperm Competition | Chp. 10 Chp. 10 Chp. 10 |
| 4 | January 23 January 24, January 26, | Sexual Selection 2 Sexual Selection 2. Cryptic Female Choice | Chp. 10 Chp. 10 Assigned Reading |
| 5 | January 30, January 31, February 2, | Workshop 1. Sexual Conflict Mating System Evolution | Chp. 10 Assigned Reading Chp. 11 |
| 6 | February 6, February 7, February 9 | Midterm 1. Parental Care Parental Care | Chp 12 Chp 12 |
| 7 | February 13, February 14, February 16 | Parental-Offspring Conflict Parent Offspring Conflict Sibling Rivalry | Chp 12 Chp 12 Assigned Reading |
| 8 | February 20, February 21, February 23 | READING WEEK No Classes | |
| 9 | February 27 February 28 March 1 | Sibling Rivalry Kinship & Kin Recognition Workshop 2. | Chp. 12 Chp. 12 |

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| 10 | March 5, March 6 March 8, | Living in Groups Midterm 2. Conflict in Social Groups | Chp. 13 pg.458-463 Assigned Reading |
| 11 | March 12, March 13, March 15 | Cooperation 1 | Chp. 13 Assigned Reading |
| 12 | March 19, March 20, March 22, | Cooperation 2 | Chp. 13 |
| 13 | March 26, March 27, March 29, | Cooperation 3 | Chp. 13 |
| 14 | April 2, April 3, April 5, | Behaviour & Conservation Behaviour & Global Change Final Review | Assigned Reading |

Required Readings

1. Reading for January 3rd (Evolution)

Grant PR & Grant BR 2006.

Evolution of character displacement in Darwin's finches.
Science 313: 224-226.

2. Reading for January 10th (Evolution of Sex)

Hurst LD & Peck JR 1996.

Recent advances in understanding of the Evolution and maintenance of sex.
Trends in Ecology and Evolution. 11: 46-52.

3. Readings for January 12th (Sex Ratio Allocation)

Ellegren H, & Sheldon BC 1996.

New tools for sex identification and the study of sex allocation in birds.
Trends in Ecology and Evolution. 12: 255-259.

4. Readings for January 26th (Cryptic Female Choice)

Pizzari T & Birkhead TR 2000.

Female feral fowl eject sperm of subdominant males.
Nature 405: 787-789.

5. Readings for January 31st (Sexual Conflict)

Chapman T, Arnqvist G, Bangham J & Rowe L 2003.

Sexual conflict

Trends in Ecology and Evolution 12: 255-259.

6. Readings for Feb 16th (Sibling Rivalry)

Mock, DW 1984.

Siblicidal aggression and resource monopolization in birds.

Science 225: 731-733.

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.

7. 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.

8. Reading for April 6th (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.

9. Reading for April 2nd (Animal Behaviour in Action)

Bell A. 2004.

An endocrine disrupter increases growth and risky behaviour in three-spined sticklebacks.

Hormones and Behaviour 45: 108-114.