Course Syllabus

Biology 3360H - Behavioural Ecology – Fall 2012
Trent University– Peterborough campus

Lectures: M 15:00-16:00; M 16:00 – 17:00 in CC 307
Discussion: M 17:00-18:00; M 18:00-19:00 in ESC B203,
Instructor - Dennis Murray, Department of Biology
Office hours - M 14:00:-15:00
   or by appointment (tel: x7078; office location - DNA D243)
email – dennismurray@trentu.ca (email only in the case of emergency)

Teaching assistants: TBA

Course description

Behavioural ecology is the study of relationships between animal behaviour, ecology, and evolution. The discipline differs from classical animal behaviour in that patterns are examined in the context of ecological conditions that ultimately affect survival and reproduction. Drawing from theoretical principles, controversial hypotheses, and numerous empirical examples, this course will examine some of the myriad behaviours exhibited by animals and explore their ecological significance and factors having favored their selection and evolution. Emphases will include i) evolution and adaptation of behaviour, ii) foraging behaviour and optimization, iii) sexual selection, mating systems, and parent-offspring conflict, and iv) critical thinking, the scientific method, and reading and understanding scientific literature.

Required Text and Other Materials


Assigned research papers in behavioural ecology

Requirements and Grading

Tests - 2 in-class non-cumulative exams worth 25 (or 15, see table below) points each, and 1 final with cumulative portions, worth 30 points. Tests will consist largely of short answer questions that evaluate student ability to think critically and solve original problems using principles explored in class, assigned readings, and discussions.

Discussion sessions - Students will be expected to participate in a semi-weekly discussion of assigned scientific papers. Attendance is mandatory, and 10 points will be allocated for discussion participation throughout the semester; for full credit each week students must demonstrate an understanding of the assigned reading by contributing relevant insight into the topics being discussed. Teams of 3-4 students will be responsible for leading one discussion period during the semester; 10 points will be based on quality of the presentation and moderation of the ensuing discussion.
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<th>Grading summary</th>
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<td>Midterm 1</td>
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**Other grade-related matters** – Exams will be presented in short answer form, and will cover materials from class, discussion sessions, and assigned readings. My advice is not to study for exams by memorizing factoids, but rather try to understand general principles by thinking critically and dynamically about processes and concepts. I will provide sample questions prior to exams, but part of your job is to make certain that class material is clearly understood at the time it is offered; PLEASE POSE QUESTIONS DURING CLASS. Make-up exams will not be given except with prior arrangement and under exceptional circumstances. Any issues with perceived grading injustices should be taken to the instructor, not the TAs. Plagiarism will not be tolerated; consult the Trent University policy for further information. I will attempt to place lecture notes on Blackboard learning system prior to the lecture but be advised that lectures are a dynamic entity and I try to update lectures each year; it is your responsibility to attend class to obtain all the current information.
Tentative lecture and exam schedule - (required readings in K&D):
Sept. 10 - Introduction (Chapter 1)
Sept. 10 - Evolution and Natural Selection (Chap. 1)
Sept. 17 - Genetics and Behaviour (Chap. 2)
Sept. 17 - A framework for Behavioural Ecology (Chap. 2) - Discussion
Sept 24 - Adaptation or Story-Telling? (Chap. 2)
Sept. 24 - Diet and Habitat Choice (Chap 3)
Oct. 1- Mid-term EXAM

Oct. 1 - Optimal Foraging - Theory (Chap. 3)
Oct. 15 - Foraging Constraints (Chap. 3)
Oct. 15 – Coevolutionary Arms Races I (Chap. 4)
Oct. 29 – Coevolutionary Arms Races II (Chap. 4)
Oct. 29 - Resource Competition and Territoriality (Chap. 5)
Nov. 5 - Pros and Cons of Living in Groups (Chap 6)
Nov. 5 - Sexual Selection (Chap 7, 14)
Nov. 12 – Mid-term EXAM

Nov. 12 - Parental Investment I (Chap 8)
Nov. 19 - Parental Investment II (Chap. 8)
Nov. 19 - Mating Systems (Chap 9,10)
Nov. 26 – Case study: Behavioural Ecology and Conservation
Nov. 26 – Kin Recognition and Kin Selection (Chap 11, 12, 13)
Dec. 3 - Review for Final Exam

Cumulative Final EXAM
**BIOL 336 - Behavioural Ecology**

**Discussion sessions**
Weekly discussions will serve to familiarize students with the peer-reviewed literature in behavioural ecology, and provide an opportunity for critical evaluation and discussion of representative articles. Discussion articles are based on material covered in lectures and assigned readings. Groups of 3-4 students will spend no more than 15 minutes of the class reviewing the major findings of the assigned article(s) and the topic in general. Students leading the discussion sessions need to offer a stimulating session with as much audience participation as possible. Student leaders will be graded not only on their ability to review and present the readings, but also by the level of stimulating discussion that they initiate. Each group of students will hand in a 1-page summary of the discussion papers and relevant discussion topics at the end of their presentation. Students are advised against using computer presentations during discussion sessions and instead should rely on overheads.

**Grading for Discussion Sessions**
1) Participation (includes 1-page summary of articles that were read) - 10 points
2) Presentation: Level of discussion, including its relation to class material – 10 points

Discussion articles:

***Note that Student-led Discussions begin on September 24. On September 17, during class time, TAs will lead a discussion using the following 2 papers:***

**Sept. 17 – A framework for Behavioural Ecology (TA’s present, all students attend)**


**Student-led discussions:**

**Sept. 24 & Oct. 1 - Evolution and Adaptation**


**Oct. 15 & Oct. 29 – Diet and Optimal Foraging**


**Nov. 5 & Nov. 12 – Territoriality and Group Living**


**Nov. 19 & Nov. 26 – Sexual Selection**


**Academic Integrity:**
Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offence and carries penalties varying from a 0 grade on an assignment to expulsion from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent University’s *Academic Integrity Policy*. You have a responsibility to educate yourself – unfamiliarity with the policy is not an excuse. You are strongly encouraged to visit Trent’s Academic Integrity website to learn more: [www.trentu.ca/academicintegrity](http://www.trentu.ca/academicintegrity).

**Access to Instruction:**
It is Trent University's intent to create an inclusive learning environment. If a student has a disability and/or health consideration and feels that he/she may need accommodations to succeed in this course, the student should contact the Disability Services Office (BH Suite 132, 748 1281 disabilityservices@trentu.ca). Complete text can be found under Access to Instruction in the Academic Calendar.