Course Description

This course examines the genetics, physiology and ecology of animal behaviour from an evolutionary perspective. The lectures emphasize a conceptual understanding of the evolutionary process, and the recognition of adaptations and trade-offs in behavioural phenotypes. The laboratories stress experimental methods of studying behaviour using live animals. Four lab sessions involve data collection and basic statistical analyses (t-tests, ANOVA), and writing of formal reports.

Prerequisite Requirements

You must have taken the prerequisites and have not taken the anti-requisite, or have written special permission from your Dean to enroll in this course. The prerequisite for this class is a half or full-course equivalent statistics course chosen from: Biology 2244A/B, Statistical Sciences 2035, 2141A/B, 2244A/B, Psychology 2810. Further Pre- or Co-requisites: Biology 2483A. The anti-Requisite is: Psychology 3221F/G.

Support Services

Learning-skills counsellors at the Student Development Centre (http://www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional or mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, http://westernusc.ca/services.

Accessibility

Please contact the course instructor if you require lecture or printed material in an alternate format or if other arrangements can make this course more accessible to you. You can also contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 if you have questions regarding accommodation.
Course Website

Abbreviated lecture notes will be posted on OWL (http://owl.uwo.ca) prior to each lecture. These are intended as a guide to facilitate your own note taking, but do not in themselves convey all the spoken information that emerges in class. Conceptual issues in particular are best grasped through the live conversations that are typical of lectures in this course. It is therefore highly recommended that you attend every lecture. Students should in addition check OWL on a regular basis for occasional news, announcements, and updates.

Course Materials

Required Texts

- Lab Manual (2017; available in the UCC Bookstore)

Recommended Text

- Three copies are available on one-day loan from the Library reserve

Anticipated Lecture Topics

Lectures will cover four major areas of research centered around Tinbergen’s levels of analysis. The material covered in lecture is complemented by material presented in the recommended textbook. By ‘recommended’, the instructor literally recommends that you read the prescribed sections of the textbook. Doing so will help you understand the conceptual and factual material, provide alternate views and examples that are not covered in class, and will provide much more context than we can cover in class. All of this text-based information will help you perform better on exams and in your lab reports. There is therefore no need to ask ‘Do we need to buy/read the text?’, because it is up to you. Finally, one or two movies may be viewed in class, and we usually invite one or two guest lecturers.

Some major lecture themes may include:

1. Historical development of the study of behaviour: ethology, behavioural ecology, sociobiology, behavioural genetics, philosophy
3. Ecology of behaviour: communication, avoiding predators, social mating systems, reproductive tactics, parental care, social groups, kin selection, human behaviour
Course Learning Outcomes

As a result of attending lectures students should be able to:

- contribute with confidence to in-class discussion re: the evolution of animal behaviour
- recognize the adaptive significance of behavioural variation
- explain how natural selection works, to any audience at any level
- interpret evolutionary theory to generate hypotheses and make testable predictions regarding the fitness consequences of behaviour
- apply the principles of social evolution to explain any major evolutionary transition

As a result of participating in hands-on laboratory activities, students should be able to:

- recognize and measure natural variation in behavioural traits
- generate and manage community data using spreadsheets
- perform a variety of statistical analyses appropriate for the data at hand
- present and interpret results in written form using support from the primary literature

Lecture and Instructor Information

<table>
<thead>
<tr>
<th>Section</th>
<th>Time</th>
<th>Room</th>
<th>Instructor</th>
<th>Office</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Tu &amp; Th 1:30–2:30 pm</td>
<td>NCB 117</td>
<td>Graham Thompson</td>
<td>BGS 2068</td>
<td><a href="mailto:gthomp6@uwo.ca">gthomp6@uwo.ca</a></td>
</tr>
</tbody>
</table>

Office Hours: 2:30 – 3:30pm after class in hallway or in BGS 2068.
Questions regarding course content and labs can also be raised in the forum on OWL.

Laboratories and TA Information

Experimental lab sessions are held in Chemistry Building (CHB) 386. Prior to working with live animals (fish, crayfish) all students will attend an Animal Use in Research Ethics seminar given by the course instructor. The purpose of the seminar is to assure students that the animals we do have on hand are well-cared for, as prescribed by a combination of University, Provincial and Federal guidelines. Moreover, the animal care seminar provides ‘good practice’ guidelines for students to handle animals with minimal stress (to animals and to students). The seminar will take place in scheduled lab time and is mandatory prior to participating in any live animal lab. Do attend.

Normally, you will have a rotation between your computer lab and the experimental lab, as prescribed in the schedule below. Exception is the human behaviour lab (Experiment 3), which will take place in your computer lab. Lab reports are to follow the format of the journal Animal Behaviour. You will find it helpful to refer to the journal’s Guide to Authors, here: http://www.elsevier.com/journals/animal-behaviour/0003-3472/guide-for-authors (particularly the reference section).
Hand in each lab report to your TA at the **beginning** of the appropriate lab. Marks will be deducted **10% per day** for late labs, 5% if submitted at the end of the due lab section. Copies in electronic form are not permitted: paper copies only. However, you must submit your report to turnitin.com through the OWL site prior to submitting the paper copy and they have to be 100% identical. Once lab reports and midterms have been returned, there is a 48 hr cool-down period before asking questions of the Prof or your TA.

**Weekly lab schedule**

<table>
<thead>
<tr>
<th>Lab &amp; Date</th>
<th>Details</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab 1: Sept 11-15</td>
<td>Computer Lab: Animal Ethics, Stats refresher</td>
<td>Your computer lab</td>
</tr>
<tr>
<td>Lab 2: Sept 18-22</td>
<td>Experiment Lab 1: Fish foraging behavior under predation</td>
<td>CHB 386</td>
</tr>
<tr>
<td>Lab 3: Sept 25-29</td>
<td>Computer Lab: Data analysis for Experiment Lab 1</td>
<td>Your computer lab</td>
</tr>
<tr>
<td>Oct 2-6</td>
<td><strong>Hand in Lab Report 1</strong></td>
<td>CHB 386</td>
</tr>
<tr>
<td>Oct 9-13</td>
<td>Reading week: No Labs</td>
<td>Relax somewhere</td>
</tr>
<tr>
<td>Lab 4: Oct 16-20</td>
<td>Experiment Lab 2: Agonistic behavior and dominance hierarchies in crayfish</td>
<td>CHB 386</td>
</tr>
<tr>
<td>Lab 5: Oct 23-27</td>
<td>Computer Lab: Data analysis for Experiment 2</td>
<td>Your computer lab</td>
</tr>
<tr>
<td>Lab 6: Oct 30-Nov 03</td>
<td>Experimental Lab 3: Human behavior and evolution</td>
<td>Your computer lab</td>
</tr>
<tr>
<td>Lab 7: Nov 6-10</td>
<td><strong>Hand in Lab Report 2</strong></td>
<td>Your computer lab</td>
</tr>
<tr>
<td>Lab 8: Nov 13-17</td>
<td>Experiment 4: Parental care behavior in a cichlid fish</td>
<td>CHB 386</td>
</tr>
<tr>
<td>Lab 9: Nov 20-24</td>
<td><strong>Hand in Lab Report 3</strong></td>
<td>Your computer lab</td>
</tr>
<tr>
<td>Nov 27 - Dec 1</td>
<td><strong>Hand in Lab Report 3</strong></td>
<td>CHB 386</td>
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</tbody>
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**Day** | **Time** | **Computer Lab** | **Teaching Assistant** | **Email**
---|---|---|---|---
Monday | 2:30-5:30 pm | SH-1310 | Kevin Young | kyou24@uwo.ca |
Tuesday | 2:30-5:30 pm | SH-1310 | Kevin Young | kyou24@uwo.ca |
Wednesday | 2:30-5:30 pm | SSC-1000 | Claire Bottini | cbottin@uwo.ca |
Thursday | 2:30-5:30 pm | NCB-105 | Claire Bottini | cbottin@uwo.ca |
Friday | 8:30-11:30 am | NCB-105 | Corrine Genier | cgenier@uwo.ca |
Evaluation

Components

The overall course grade will be calculated from the following components.

<table>
<thead>
<tr>
<th>Component</th>
<th>Notes</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>Thurs, Oct 13, 7-10 pm NCB114/117</td>
<td>30</td>
</tr>
<tr>
<td>Laboratories</td>
<td>Best 3 out of 4, each worth 10%</td>
<td>30</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Scheduled by the Registrar</td>
<td>40</td>
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</table>

Midterm and Final exams are typically a mix of multiple choice, short answer, non-intensive calculations, and long answer questions. Midterms and exams cater to students with a conceptual understanding of ideas and themes, rather than to those who study only by memorization. Given this is a senior level course, I will be looking for your ability to explain what you know – clearly, concisely, and often at the conceptual level. Your ability to communicate effectively is therefore important. Curt, unsupported, abstract, vague, contradictory or otherwise incompetent answers are unlikely to garner full marks, even if they contain key words captured from lecture or text. In short, avoid the “you know what I was trying to say…” thing 😊

The data that we generate in the labs is not pre-determined. It is ‘real’ and valuable for the ensuing analysis. What’s more, is that data generated by each student is pooled and shared, so it is important that you attend the wet labs to contribute your share, and understand how it was generated. **For this reason, lab attendance is mandatory and recorded.** However, if you choose not to **complete your personal report to count as the lowest lab grade out of four**, then that is up to you. Consider also that tests and exams will contain questions related to the theoretical aspects of the experiments, so it is simply smart for you to attend each lab fully engaged.

Non-programmable calculators are allowed in the midterm and final. No other electronic devices can be in your possession during the midterm and final.

It is Faculty of Science policy that a student who chooses to write a test or exam deems themselves fit enough to do so, and the student must accept the mark obtained. For this reason, claims of medical, physical, or emotional distress after the fact will not be considered.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

All required papers will be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is
subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

Computer-marked, multiple-choice tests and exams will be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating. If the instructor is requested to reassess any report, midterm, or exam, they will review the entire document prior, during or after the arranged meeting time. Your mark will either remain the same, increase, or decrease. The revised mark will replace the original mark with no basis for appeal.

No special rounding rules (e.g. to meet GPA cut-offs, minimal requirements for programs, etc.) are applied in this course when calculating final course grades. Course components will not be re-weighted (exception below), nor will additional assignments be accepted, to accommodate perceived poor performance on any assessment or for any unaccommodated absence during a graded component of this course.

Missed Course Components

**Midterm:** If students miss the Midterm for a Dean-approved reason, including conflict with another midterm, then the student will write a make-up midterm that will be scheduled on a need-to basis.

**Lab reports:** There are no make-up labs, and it is not possible to reschedule them. If you fail to submit a lab report for any reason, you will be assigned a mark of zero for that report. The first missed lab report will be counted as your worst grade, and the other three will make up the final mark of your lab component. If a second report is missed due to a reason that is approved by your faculty’s Academic Counselling Office, the zero will be replaced by a mark of EXCU (excused), which shifts the weight of the missed lab report onto the subsequent report(s). If the second lab report missed is the final report, then that grade will be weighted onto your final exam.

You must, as soon as you’re able to do so, submit documentation to your faculty’s Academic Counselling Office. If they approve your circumstances, I will be notified.

If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in WSC 140, and can be contacted at 519-661-3040 or scibmsac@uwo.ca. Their website is http://www.uwo.ca/sci/undergrad/academic_counselling/index.html.

A student requiring academic accommodation due to illness must use the Student Medical Certificate (https://studentservices.uwo.ca/secure/medical_document.pdf) when visiting an off-campus medical facility.