ANSC*3090 Principles of Animal Behaviour

Fall 2021
Section(s): C01

Department of Animal Biosciences
Credit Weight: 0.50
Version 1.00 - September 07, 2021

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1 Course Details

1.1 Calendar Description

This course deals with why vertebrates behave as they do (with particular emphasis on mammals and birds), covering the causation of behaviour (including learning, motivation, affective states, hormones, sensory processing, and neurobiological mechanisms); function (both immediate/proximate and adaptive/ultimate); ontogeny (including socialization and sensitive periods); and phylogeny (especially the influences of taxonomic group and domestication). This framework is then applied to the following aspects of animal behaviour: foraging, anti-predator responses, sleep, sociality, mating, parental behaviour, play, dispersal and territoriality, animal intelligence, and behavioural pathologies.

**Pre-Requisites:** ANSC*1210
**Restrictions:** ANSC*4090. Restricted to students in BSCH.ABIO, BSAG.ANSC and BBRM.EQM.

1.2 Course Description

Note that the course covers scientific research on animal behaviour (ethology), including how research is conducted.

1.3 Timetable

Class delivery:

Until Sept. 28th, all classes will be delivered via Zoom, synchronously starting at 4pm Tues/Thurs. They will also be recorded and uploaded, for revision / asynchronous use.

Face to face teaching will resume in October; classes will be delivered in MacNaughton 105 (but also relayed online live via Zoom, and recorded for revision/asynchronous use).

See 'Activities' section for the lecture schedule.
COVID-19 Disclaimer: please be aware that the information on course delivery, accessibility and examinations presented in this outline were developed based on current University guidelines. However, due to the continuously evolving situation and resulting changes in public health recommendations, the format and delivery of this course may be revised with limited notice.

1.4 Final Exam

There is no timed, university-scheduled final exam for this course. (But there is a last take home exam, in early December; see ‘assignments’).

2 Instructional Support

2.1 Instructional Support Team

Instructor: Georgia Mason (she/her)  
Email: gmason@uoguelph.ca  
Office Hours: Email is the best way to contact me, and please always put ANSC*3090 in the subject line.

Office Hours: I will be available online for 30 minutes after every class. I also respond quickly to email, and am happy to make individual Skype/Zoom/phone appointments as needed. I will also schedule regular "open air office hours" (weather dependent!)

Office Hours: Email is the best way to contact me, and please always put ANSC*3090 in the subject line.

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2.2 Teaching Assistants

Teaching Assistant (GTA): Quinn Rausch (they/them)
Email: qrausch@uoguelph.ca

Teaching Assistant (GTA): Michelle (Jacqueline) Lavery (she/her)
Email: jlavery@uoguelph.ca

Teaching Assistant (GTA): Katy Trudel (she/her)
Email: ktrude02@uoguelph.ca

Teaching Assistant (GTA): Rosemary (Rosie) Whittle (she/her)
Email: rwhittle@uoguelph.ca

3 Learning Resources

3.1 Required Resources

Other Resources: (Website)
CourseLink will be used to disseminate all course information including: lecture slides and notes prior to class, supplementary readings, grades, and any additional information regarding course content and proceedings (e.g. lecture schedules, due dates, course syllabus, etc.).

In addition, message boards will be set up for students to ask questions to their peers and/or course instructor. And all classes will be recorded and uploaded into CourseLink for revision and asynchronous class attendance.

3.2 Recommended Resources

Recommended Texts: (Textbook)
For the fundamentals of ethology, we recommend the following:


For applied ethology, we recommend the following:


We also recommend avoiding lay books and websites (i.e. anything written for the general public by people without research experience in the study of animal behaviour).

3.3 Additional Resources

Course Technologies and Technical Support (Software)

System and Software Requirements

This course will use two main technologies:

- CourseLink (main classroom)
- Zoom
To help ensure you have the best learning experience possible, please review the list of system and software requirements, and make sure you have a Zoom account.

https://opened.uoguelph.ca/student-resources/system-and-software-requirements

CourseLink System Requirements

You are responsible for ensuring that your computer system meets the necessary system requirements. Use the browser check tool to ensure your browser settings are compatible and up to date. (Results will be displayed in a new browser window).

http://spaces.uoguelph.ca/ed/system-requirements/
https://courselink.uoguelph.ca/d2l/systemCheck

Course Technologies

Please make sure you have a Zoom account before Class 1 on Sept. 10th!

CourseLink

This course is being offered using CourseLink (powered by D2L’s Brightspace), the University of Guelph’s online learning management system (LMS). By using this service, you agree to comply with the University of Guelph’s Access and Privacy Guidelines. Please visit the D2L website to review the Brightspace privacy statement.
and Brightspace Learning Environment web accessibility standards.


**Technical Support**

If you need any assistance with the software tools or the CourseLink website, contact CourseLink Support.

*Email: courselink@uoguelph.ca*

*Tel: 519-824-4120 ext. 56939 Toll-Free (CAN/USA): 1-866-275-1478*

**Support Hours (Eastern Time):**

*Monday thru Friday: 8:30 am–8:30 pm*

*Saturday: 10:00 am–4:00 pm*

*Sunday: 12:00 pm–6:00 pm*
Zoom

This course will use Zoom for lectures. Check your system requirements to ensure you will be able to participate.

https://opened.uoguelph.ca/student-resources/system-and-software-requirements

3.4 Dropbox Submissions

Assignments should be submitted electronically via the online Dropbox tool. When submitting your assignments using the Dropbox tool, do not leave the page until your assignment has successfully uploaded. To verify that your submission was complete, you can view the submission history immediately after the upload to see which files uploaded successfully. The system will also email you a receipt. Save this email receipt as proof of submission.

Be sure to keep a back-up copy of all of your assignments in the event that they are lost in transition. In order to avoid any last-minute computer problems, your instructor strongly recommend you save your assignments to a cloud-based file storage (e.g., OneDrive), or send to your email account, so that should something happen to your computer, the assignment could still be submitted on time or re-submitted.

It is your responsibility to submit your assignments on time as specified on the Schedule. Be sure to check the technical requirements and make sure you have the proper computer, that you have a supported browser, and that you have reliable Internet access. Remember that technical difficulty is not an excuse not to turn in your assignment on time. Don’t wait until the last minute as you may get behind in your work.

If, for some reason, you have a technical difficulty when submitting your assignment electronically, please contact your instructor or CourseLink Support.
3.4 Library Access

As a student, you have access to the University of Guelph’s library collection, including both physical and electronic materials. For information on checking out or couriering physical library items, accessing electronic journals and returning items to the library, visit the library’s website.

If you are studying off campus and would like to access the library’s electronic resources, use the Off Campus Login and login using your Single Sign On credentials or using your last name and library barcode.

https://www.lib.uoguelph.ca/

https://www.lib.uoguelph.ca/campus-login

4 Learning Outcomes

Students taking this course will learn how to:

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Find and critique primary research articles; and identify appropriate ethological methods for collecting different types of behavioural data.

2. Distinguish between causal, developmental, functional and phylogenetic explanations of behaviour; demonstrate how these complement each other; and explain how behaviour evolves under natural selection (including kin selection and sexual
3. Utilize new ethological vocabulary appropriately, and correctly analyse and interpret ethological data from tables and figures.

4. Explain how sensory information is integrated by the sensory organs and brain, and be able to contrast species with different lifestyles; explain the influences of hormones and some neurotransmitters on behaviour, and how the different regions of the brain act together to generate behavioural sequences; also recognise and explain how these mechanisms can malfunction.

5. Distinguish between the concepts of motivation, learning, intelligence and affective state, and evaluate their roles in the control of behavior; and describe how putative mental states can be rigorously studied using objective scientific methods (so becoming able to discriminate between scientifically accurate descriptions of animals’ capacities and mere anthropomorphism).

5 Teaching and Learning Activities

Class delivery:

All classes will be delivered synchronously on Zoom starting at 4pm Tues/Thurs. They will also be recorded and uploaded, for revision / asynchronous use. All classes are led by the course instructor, Georgia Mason, save for four classes led by TAs Jess Cait (JC in the schedule below) and Michelle Lavery (ML in the schedule below).

5.1 Lecture

Thu, Sep 9

Topics: Module 1: Introduction, overview, & methods:

a. Why study behaviour?

Introduction to the course: the fascination of animals and their behaviour; and outline of practical applications of knowledge of behaviour; the history of ethology
a. Levels of explanation: Why do animals behave as they do?

The causation, function, ontogeny and phylogeny of behaviour: what they are, and how they complement each other

Tue, Sep 14

Topics:

How animal behaviour is studied

Ethological methods: how scientists turn the complexity and flow of behaviour into data for objective, quantitative analysis

Thu, Sep 16

Topics:

Module 2: Key concepts and mechanisms:

The brain: the master controller of behavior (and how studied)

a) The brain: basics

Basic anatomy and function; how the brain is studied

b) How behavioural patterns are generated

How the brain makes the decisions that underlie behaviour, and produces the outputs needed to elicit and control muscle action; how these systems can malfunction

Tue, Sep 21
Topics: **The senses and sensory processing I (JC)**

Sensory organs, cells and sub-cortical and cortical processing across the many diverse senses

**Thu, Sep 23**

Topics: **The senses and sensory processing II (JC)**

*Continued from Tuesday*

**Tue, Sep 28**

Topics: **Motivation – the basics**

What determines whether an animal will do any given behaviour, how long it is performed for, and at what rate? Appetitive versus consummatory aspects of motivation

**Thu, Sep 30**

Topics: **Motivation – the biology**

*a) The neurobiology of motivation*

Key neurotransmitters and brain regions

*b) Effects of hormones*

Priming and activational effects of hormones

**Tue, Oct 5**

Topics: **Learning and memory I: Types of learning**

How does experience affect behavior via learning?
Different types of learning; how learning and motivation inter-relate to determine behaviour

Thu, Oct 8
Topics: **Learning and memory II: Associative learning**
Classical and operant learning explained; causal factors that accelerate/impede associative learning

Tue, Oct 12
Topics: **(No Tuesday class this week)**

Thu, Oct 14
Topics: **Behavioural development**
How early experience and lifestage affect behavior

Tue, Oct 19
Topics: **The evolution of behaviour**
The concepts of adaptation and (inclusive) fitness; how behaviour evolves

Tue, Oct 26
Topics: **Animal intelligence**
Theory of mind and perspective-taking; insight learning and tool use; episodic memory; concept formation and numeracy; distinguishing true intelligence from mere associative learning

Thu, Oct 28
Topics: **Learning in context: Integrating Classes 9, 10, 11 & 12**
The effects of development and phylogeny on learning abilities; the costs and benefits of learning; learning versus ‘instinct’

**Tue, Nov 2**

**Topics:**

**Affective states and sentience**

Do animals have emotions and moods? Are they sentient? If yes, what roles do these states have in the control of behaviour?

**Thu, Nov 4**

**Topics:**

**No formal class this week: Exam I set this evening**

**Tue, Nov 10**

**Topics:**

**PART B: SPECIFIC BEHAVIOURAL SYSTEMS**

**Module 3: Play and interacting with conspecifics**

**Play**

How and why young animals play

**Thu, Nov 11**

**Topics:**

**Interacting with conspecifics**

**a) Social behaviour**
Living in groups, individual recognition, dominance and altruism

**Tue, Nov 16**

**Topics:**  
*b) Sexual and reproductive behaviour* *(ML)*

How animals choose and court their mates; post-copulatory mate choice and other reproductive decisions

**Thu, Nov 18**

**Topics:**  
*c) Parental care* *(ML)*

Maternal and parental investment; weaning strategies; allo-parental care by siblings and other relatives

**Tue, Nov 23**

**Topics:**  
**Module 4: Eating and being eaten**

**Avoiding predators**

Vigilance and anti-predator responses

**Thu, Nov 25**

**Topics:**  
**Foraging**

How foraging phenotypes emerge: development and
phylogeny

**Tue, Nov 30**

**Topics:** Foraging continued: The causes and functions of foraging behaviour

**Thu, Dec 2**

**Topics:**

**PART C: WHEN BEHAVIOUR GOES WRONG**

**Maladaptive and pathological behaviours**

Organisational effects gone awry; impaired brain development; when imprinting/socialisation backfires; ecological mismatch and ecological/evolutionary traps (e.g. responses to novel anthropogenic stimuli).

**5.2 Lab**

**Topics:** None

**6 Assessments**

Course Assignments and Exams:

**6.1 Marking Schemes & Distributions**
<table>
<thead>
<tr>
<th>Assignment, Quiz or Exam</th>
<th>Contribution to Final Mark (%)</th>
<th>Course Learning Outcomes Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assignment 1:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literature search assignment on levels of explanation <em>(M/C)</em></td>
<td>10</td>
<td>1,2</td>
</tr>
<tr>
<td><strong>Assignment 2:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtaining behavioural data from videos <em>(M/C)</em></td>
<td>12</td>
<td>1,3</td>
</tr>
<tr>
<td><strong>Assignment 3:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning assignment</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td><strong>GROUP WORK</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Take-home Exam I (mid-term)</td>
<td>22</td>
<td>All</td>
</tr>
<tr>
<td><strong>Assignment 4:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evolution quiz</td>
<td>16</td>
<td>2,3,4</td>
</tr>
<tr>
<td>Take-home Exam II</td>
<td>22</td>
<td>All</td>
</tr>
</tbody>
</table>
6.2 Assessment Details

Literature search assignment on "levels of explanation" (10%)
    Date: Thu, Sep 16
    Learning Outcome: 1, 2
    Set Thurs Sept. 9th, due Thurs Sept. 16th

Assignment 2: Obtaining behavioural data from videos (12%)
    Date: Thu, Sep 23
    Learning Outcome: 1, 3
    Set Thurs Sept. 16th, due Thurs Sept. 23rd

Assignment 3: Learning in animals around you (18%)
    Date: Thu, Oct 28
    Learning Outcome: 3
    Set Thurs Oct. Oct. 7th, due Oct. 28th

Note that the class's lecture slot on Oct 21st is free time to give your group more time to work together.

Take home exam I (22%)
    Date: Thu, Nov 11
    Learning Outcome: 1, 2, 3, 4, 5
    Set Thurs. Nov 4th, due Thurs. Nov. 11th

Assignment 4: Evolution quiz (16%)
    Date: Thu, Dec 2
    Learning Outcome: 2, 3
    Set Thurs Nov 25th, due Thurs. Dec 2nd

Take-home Exam II (22%)
    Date: Fri, Dec 10
    Learning Outcome: 1, 2, 3, 4, 5
    Set Fri. Dec 3rd, due Fri. Dec. 10th

6.3 Quizzes, exams and assignments

Quizzes, exams and assignments:

You will always have at least a week in which to do these; and none will be timed. You may work on them solo or with others, as you prefer.

Take-home Exam I will be a short answer exam that focuses on your understanding of the concepts and biological mechanisms you have learned about in Lecture Part A; it will also
extend your understanding of experimental design and hypothesis-testing by giving you two research papers to read and answer questions on.

**Take-home Exam II** will also be a short answer exam that focuses on your understanding of the behavioural systems you have learned about in Part B (but assuming an understanding of all the concepts and terminologies introduced in Part B), and it will test your ability to accurately interpret data from tables and figures by giving you two research papers to read and answer questions on.

Final exam weighting:

There is no final exam.

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### 7 Course Statements

#### 7.1 Grading Policies for ANSC*3090:

All assignments are take-home. In every case we will give you at least a week between posting the assignment details and hand in.

Late assignments will be penalized by 10% of the assignment grade each and every day they are late.

#### 7.2 Netiquette Expectations

The course website is considered the classroom and the same protections, expectations, guidelines, and regulations used in face-to-face settings apply. Inappropriate behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor or fellow students;
- Using obscene or offensive language online
• Copying or presenting someone else's work as your own;
• Adapting information from the Internet without using proper citations or references;
• Buying or selling term papers or assignments;
• Posting or selling course materials to course notes websites;
• Having someone else complete your quiz or completing a quiz for/with another student;
• Stating false claims about lost quiz answers or other assignment submissions;
• Threatening or harassing a student or instructor online;
• Discriminating against fellow students, instructors, and/or TAs;
• Using the course website to promote profit-driven products or services;
• Attempting to compromise the security or functionality of the learning management system; and
• Sharing your username and password
• Recording lectures without the permission of the instructor

7.3 Technical Skills

As part of your learning experience, you are expected to use a variety of technologies for assignments, lectures, teamwork, and meetings. In order to be successful in this course you will need to have the following technical skills:

• Manage files and folders on your computer (e.g., save, name, copy, backup, rename, delete, and check properties);
• Install software (e.g. Zoom), security, and virus protection;
• Use Office applications (e.g., Word, PowerPoint, or similar) to create documents; also use software to work as a team (e.g. Google Docs or One Drive);
• Be comfortable uploading and downloading saved files;
• Communicate using email (e.g., create, receive, reply, print, send, download, and open attachments);
• Navigate the CourseLink learning environment and use the essential tools, such as Dropbox, Quizzes, Discussions, and Grades (the instructions for this are given
in your course);
- Access, navigate, and search the Internet using a web browser (e.g., Firefox, Internet Explorer); and
- Perform online research using various library databases.

8 University Statements

8.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

8.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Graduate Calendar - Grounds for Academic Consideration
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions
https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml

8.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

Graduate Calendar - Registration Changes
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml

Associate Diploma Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml
8.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

8.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website https://www.uoguelph.ca/sas

For Ridgetown students, information can be found on the Ridgetown SAS website https://www.ridgetownc.com/services/accessibilityservices.cfm

8.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community-faculty, staff, and students-to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University’s policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml
8.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

8.8 Resources

The Academic Calendars are the source of information about the University of Guelph’s procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars
https://www.uoguelph.ca/academics/calendars

8.9 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (https://news.uoguelph.ca/2019-novel-coronavirus-information/) and circulated by email.

8.10 Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

8.11 Covid-19 Safety Protocols

For information on current safety protocols, follow these links:

- https://news.uoguelph.ca/return-to-campuses/how-u-of-g-is-preparing-for-your-safe-return/
- https://news.uoguelph.ca/return-to-campuses/spaces/#ClassroomSpaces

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.