

# BIOLOGY 448 – NEUROETHOLOGY (CRN 10400)

Fall 2024

Department of Biology, University of Victoria

## Welcome to Biol448!

We acknowledge and respect the lək3ʷəŋən peoples on whose traditional territory the University of Victoria stands, and the Songhees, Esquimalt and W̱SANEĆ peoples whose historical relationships with the land continue to this day. We are thankful to be able to learn together on this land and strive to make the world a better place.

We welcome everyone to learn in this course and we respect every human being, including people from all ethnic backgrounds, religious beliefs, sexual orientations, genders, socioeconomic backgrounds and abilities.

## Course Description

Examination of the neural basis of behaviour. Insights into the neuronal organization of behaviour through examination of neural solutions that have evolved in animals to solve problems encountered in their particular environments. Examples in individual species will be used to illustrate how neuronal systems integrate information to shape behaviour in a real-world context. Research papers and seminar presentations based on the primary literature will be emphasized.

## Instructors

**Lecture:** Rossi Marx ([zoology@uvic.ca](mailto:zoology@uvic.ca)); when you send an email, please put 'Biology 448' in the message line. Office hours by appointment.

**Tutorials:** Sarah Board ([smboard@uvic.ca](mailto:smboard@uvic.ca)); office hours TBA.

Hannah Brown ([hlbrown@uvic.ca](mailto:hlbrown@uvic.ca)); office hours TBA.

## Schedule

<b>Lectures:</b>	M, Th:	1:00 – 2:20 pm	Cun146
<b>Tutorials:</b>	Th: T01:	2:30 – 3:50 pm	Petch 107
	Th: T02:	4:00 – 5:20 pm	Petch 107
	Th: T05:	5:30 – 6:50 pm	Petch 107
	F: T03:	12:30 – 1:50 pm	Petch 107
	F: T04	2:00 – 3:20 pm	Petch 107

**Prerequisites:** Biology 345 and / or Biology 365

## Readings / Lecture Notes

### **Library Course Reserves:**

**Camhi, J.M. 1984.** *Neuroethology*. Sinauer Associates Inc., Sunderland, Mass.

**Carew, T.J. 2000.** *Behavioural Neurobiology*. Sinauer Associates Inc., Sunderland, Mass.

Additional materials may be placed on reserve during the term.

### **Brightspace:**

Lecture notes and material for the tutorials will be posted on Brightspace.

**Please note that any posted materials are for course purposes only and are not to be distributed!**

**Fair dealing statement:** Copies are made pursuant to the [Fair Dealing Guidelines](#) of the University, library database licenses, and other university licenses and policies. The copy may only be used for the purpose of research, private study, criticism, review, news reporting, education, satire or parody. If the copy is used for the purpose of review, criticism or news reporting, the source and the name of the author must be mentioned. The use of the copy for any other purpose may require the permission of the copyright owner.

### **Intended Learning Outcomes for Biology448 Neuroethology**

#### **Goals for this course**

- ✓ The main goal for this course is introduce you to and excite you about neuroethology. Given that the latter is an interdisciplinary science, combining both neuroscience and ethology, we will cover selected examples illustrating different behaviours and the processes and mechanisms that bring about those behaviours. The course will also introduce you to terminology and general neuroethological principles and concepts, both current and historical.
- ✓ Another course goal is to provide you with the opportunity to practice your skills to critically evaluate primary research papers, to engage in discussions about the merits of the papers with your peers, and to present your evaluations in both oral and written formats.

#### **At the end of this course, you will**

- ✓ know, be able to define, and provide examples for neuroethological terms and terminology
- ✓ understand and know the details of the behavioural examples covered in the course
- ✓ understand and know the details of the processes that bring about those behaviours
- ✓ recognize themes regarding neuronal mechanisms and processes encountered throughout the course
- ✓ be able to analyse and critically evaluate relevant published scientific papers
- ✓ present, both orally and in a formal written scientific report, the results of your critical evaluation of a primary research paper
- ✓ have gained an appreciation for and understanding of how organisms are able to respond to stimuli, process the information, and initiate an appropriate response

#### **Throughout the course we expect you to**

- ✓ engage with lecture and tutorial materials
- ✓ exercise responsible time management by meeting all assessment deadlines and being punctual to lectures and tutorials
- ✓ be proactive, aiming for problem solving rather than complaining
- ✓ adhere to teamwork expectations
- ✓ be respectful and collegial with peers and instructors

### **Distribution of Marks**

<b>Midterm Exam</b> (Oct. 21)	<b>20%</b>
<b>Final Exam</b> (scheduled by Records)	<b>40%</b>
<b>Critical Analysis Paper</b> (due Nov. 14, topic due Oct. 28)	<b>15%</b>
<b>Presentation</b> (10 min) based on evaluation of paper (start Nov. 14/15)	<b>5%</b>
<b>Tutorials</b>	<b>20%</b>
Papers (1 @ 3%, due Sep.26; 1 @ 7%, due Oct. 24)	(10%)
Preparation / Participation	( 5%)
Marking Assignment (due Oct. 31)	( 5%)
Total	<b>100%</b>

To receive the full preparation marks for the weekly tutorials, you will need to provide, in writing, three points, good or bad, about the paper that is to be discussed each week (no need to elaborate, just the three points will suffice).

### Assignments

Submit your papers/assignments as .doc or .docx files to Brightspace **by 1:00 pm** of the due dates.

#### ➤ **Papers**

The papers are critical analyses of original research papers dealing with neuroethological topics. Detailed instructions will be provided in class; in brief, your task is to provide points, good or bad, regarding the **science** of the research paper in question, and to support your arguments.

For the format, use 1.5 spacing, Times Roman 12-point font, and 1 inch margins; no title page. Also see 'Writing Scientific Papers', 'How to critically read and analyze a scientific paper', and 'Critical Analyses: things to consider' posted on Brightspace.

#### ✓ **Tutorial Papers** (original paper given)

Paper 1 (3%): 1½ pages, including concluding sentence. This is a group assignment (up to four students / group). Provide three points, good or bad, regarding the science of the paper.

Paper 2 (7%): 2½ pages, including concluding paragraph. You will be working in pairs for this assignment. Provide three points, good or bad, regarding the science of the paper.

Graduate students taking Biol516 submit individual assignments.

#### ✓ **Critical Analysis Paper**

This is an individual assignment.

Four written pages (excluding reference section and figures), based on original paper of your choice, at least five original references; includes brief (~¾ page) introduction providing background information for the scientific topic and summarizing the original paper, as well as a concluding paragraph. Provide three points, good or bad, regarding the science of the paper.

The original paper should be as recent as possible, but preferably should have been published within the last five years. **The topic can be any topic within the realm of neuroethology, but the original paper should not just focus on behaviour, nor just focus on mechanisms and processing, but should cover both aspects to some degree.** The paper that you choose must be an original research paper and cannot be a review or meta-analysis.

Along with your analysis, please also submit PDFs of or links to the original paper and of three of your most pertinent reference papers.

#### ➤ **Marking Assignment**

This is an individual assignment. You will be assessed for your efforts in marking a tutorial paper 2 assignment anonymously submitted by one of your colleagues.

### Policies

#### **Assessment Policy**

You are responsible for attending lectures and discussions, and for reading the specified papers. Failure to do so can and likely will influence your class performance.

The assignments must be completed fully and on time. We will accept late assignments, but a **20% late penalty will be applied per day for up to two days late**, after which time the assignment will no

longer be accepted, unless you have been granted an extension. Problems with computers are **not** considered valid excuses for late assignments.

All requests for assignment extensions or other academic concessions must be made to Rossi Marx ([zoology@uvic.ca](mailto:zoology@uvic.ca)) before the deadline as soon as you know that you will require an extension. Each request will be considered on an individual basis. **You must submit, at the time of the deadline, whatever you have completed.** You will be allowed to resubmit the completed assignment if the extension is granted. **Please note that the extended due date must be before the marked assignment and feedback have been released.**

**Challenges and queries** pertaining to assignments and exams will only be considered for one week after receiving the marked assignment or exam.

### Exams

The midterm and final exams will have short answer and fill-in-the-blank type questions and may have some multiple-choice questions. The final exam will also have some long answer questions (up to one page).

The midterm and final exams can be deferred in cases of documented illness, accident, family affliction, or sporting commitments as a UVic athlete. For a missed midterm exam, we will schedule a mutually agreeable date for a deferred exam as soon as possible after the regularly scheduled exam.

If you expect to miss the final exam for any of the above reasons, please notify the instructor beforehand and produce supporting documentation as soon as possible. You must also fill out a Request for Academic Concession form, available from the Records office, as soon as possible. Travel plans are not a valid reason for missing the final exam.

### Grading Policy

In determining final grades for the course, our spreadsheet will round your course score to the nearest whole percent. That is the official course grade that will be submitted for you.

We cannot change your grade for any reason, except if we have made an error calculating it. There is no extra work that you can do to raise your grade, and there is no supplemental final exam offered in this course.

If you do not want your marks posted using your ID#, please notify us at the beginning of the term.

### Academic Regulations and Policies

Please read the appropriate section of the current UVic Academic Calendar regarding your rights and obligations. It is your responsibility to check your records and registration status and to meet the ADD/DROP dates from the UVic calendar; you will not be dropped automatically from the course if you do not attend.

### Cheating and Plagiarism

The University and the Biology Department deal with cheating and plagiarism as a serious matter, since ignoring it could be interpreted as endorsing dishonest practice in one's later professional career. To claim ignorance of the University's policy on academic integrity is, therefore, not excused. Please read the policy carefully to avoid unpleasant misunderstandings. The policy can be found on the online UVic calendar (<https://www.uvic.ca/students/academics/academic-integrity/index.php>).

Individual assignments are to be prepared by each student independently, even if they are based on collaborative discussions. Please keep in mind that *submitting other people's work, whether a fellow student's or a published author's, as your own is plagiarism and will be penalized. This is a serious offence.*

The University of Victoria Biology department reserves the right to use plagiarism detection software or other platforms to assess the integrity of student work.

### **Planned Lecture Topics**

Communication using Pheromones  
Cephalopod behaviour, chemo- and mechanoreception, and learning  
Mechanoreception in the Star-Nosed Mole  
Neuroethology of Cricket Song  
Echolocation in Bats

### **Important Dates**

On the UVic website you will find a fuller list of important dates, but the ones listed below are the ones that will matter to students in Biology 448 and to students wishing to add the course this term.

Wednesday, September 4	First day of classes
<b>Thursday, September 12</b>	<b>First day of Biology 1448 Tutorials</b>
Tuesday, September 17	Last day for 100% reduction of tuition fees for standard first-term and full-year courses
Friday, September 20	Last day for adding courses that begin in the first term
<b>Thursday, September 26</b>	<b>Tutorial paper 1 due</b>
Monday, September 30	Last day for paying first term fees without penalty National Day for Truth and Reconciliation
Tuesday, October 08	Last day for 50% reduction in tuition fees for standard courses; 100% of tuition fees will be assessed for courses dropped after this date
Monday, October 14	Thanksgiving Day
<b>Monday, October 21</b>	<b>Biology 448 Midterm Exam</b>
<b>Thursday, October 24</b>	<b>Tutorial paper 2 due</b>
<b>Monday, October 28</b>	<b>Topic for Critical Analysis paper due</b>
Thursday, October 31	Last day for withdrawing from courses without penalty of failure
<b>Thursday, October 31</b>	<b>Marking Assignment due</b>
Mon. – Wed., Nov. 11-13	Reading break, no classes
<b>Thursday, November 14</b>	<b>Critical Analysis paper due</b>
<b>Thur/Fri, November 14/15</b>	<b>Biology 448 Presentations start</b>
Wednesday, December 04	Last day of classes
Saturday, December 07	First day of final exam period
Friday, December 20	Last day of final exam period

### **Course Experience Survey (CES)**

We value your feedback on this course. Towards the end of term, as in all other courses at UVic, you will have the opportunity to complete an anonymous survey regarding your learning experience (CES). The survey is vital to providing feedback to us regarding the course and our teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an email inviting you to do so. You will need to use your UVic netlink ID to access the survey. Please be thinking about this important activity during the course.

The CES system is available at this link: [ces.uvic.ca/blue](https://ces.uvic.ca/blue).

*UVic is committed to promoting, providing and protecting a supportive and safe learning and working environment for all its members.*