BIOLOGY 448 – NEUROETHOLOGY (CRN 10413)

Fall 2025
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 W̱ SANEĆ 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); when you send an email, please put 'Biology 448' in the message line. Office hours by appointment, group study times TBA.

Tutorials: Sarah Board (smboard@uvic.ca); office hours TBA.

Hannah Brown (hlbrown@uvic.ca); office hours TBA.

Schedule

Lectures:	M, Th:	1:00 – 2:20 pm	Cun146
Tutorials:	Th: T01:	2:30 – 3:50 pm	CLE A308
	Th: T02:	4:00 – 5:20 pm	CLE C116
	Th: T05:	5:30 – 6:50 pm	CLE C116
	F: T03:	12:30 – 1:50 pm	CLE A308
	F: T04	2:00 – 3:20 pm	CLE A308

Note: we will move the tutorial sessions to Petch 107, which is currently being renovated, as soon as the room becomes available, hopefully in October.

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.

Kandel, E. R., Schwartz, J. H., & Jessell, T. M. 2000. *Principles of neural science* (4th ed.). McGraw-Hill, Health Professions Division

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.

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

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

Distribution of Marks

Midterm Exam (Oct. 20)		**20%**
Final Exam (scheduled by Records)		**40%**
Critical Analysis Paper (due Nov. 13, topic due Oct. 27)		**15%**
Presentation (10 min) based on evaluation of paper (start Nov. 13/14)		**5%**
Tutorials		**20%**
Papers (1 @ 3%, due Sep.25; 1 @ 7%, due Oct. 23)	(10%)	
Marking Assignment (due Oct. 30)	(5%)	
Preparation / Participation	(5%)	
	Total	**100%**

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.

  Format: 1.5 spacing, 12-point font preferably but not necessarily Times Roman, one-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** (group assignments; 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%): 2 ½ 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.

  - ✓ **Critical Analysis Paper** (15%, individual assignment; original paper selected by the student)

    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 links to the original paper and to three of your most pertinent reference papers.

- **Marking Assignment** (5%, individual assignment)

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

Policies

Attendance and Absences

You are responsible for attending lectures and tutorial sessions and for reading the specified papers. Failure to do so can and likely will influence your class performance. You will be required to achieve satisfactory standing in both the lecture and tutorial components of the course.

Please notify your instructor if you are unable to attend a tutorial session due to illness, accident, family affliction, or sporting commitments as a UVic athlete. We will excuse you for the missed session and calculate your participation mark accordingly so you will not be penalized for not attending.

Assessments

- **Tutorials**
  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). If you cannot attend a session, you can email the three points about the paper to your instructor.
- **Assignments**

  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 by emailing Rossi Marx (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.**

- **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 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 email Rossi Marx (zoology@uvic.ca) 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 exams. **The department of Biology does not offer supplemental final exams.**

Challenges and queries pertaining to assignments and exams will only be considered for one week after receiving the marked assignment or 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 on Brightspace using the last four digits of your student ID#, please notify us at the beginning of the term.

Grading scheme: A+ (90-100%), A (85-89.49%), A- (80-84.49%), B+ (77-79.49%), B (73-76.49%), B- (70-72.49%), C+ (65-69.49%), C (60-64.49%), D (50-59.49%), F (<50%, after final)

Required Course Components and N Grades: Students must complete the midterm and final exam and the critical analysis paper and presentation to complete the course. Failure to complete one or more of these elements will result in a grade of "N" regardless of the cumulative percentage on other elements of the course. An N is a failing grade, and it factors into a student's GPA as 0. The maximum percentage that can accompany an N on a student's transcript is 49.

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.

Students are required to abide by all academic regulations set as set out in the University calendar, including standards of academic integrity. Violations of academic integrity (*e.g*. cheating and plagiarism) are considered serious and may result in significant penalties.

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.

Student Conduct

The University of Victoria is committed to promoting critical academic discourse while providing a respectful and supportive learning environment. All members of the university community have the right to this experience and the responsibility to help create such an environment. The University will not tolerate racism, sexualized violence, or any form of discrimination, bullying or harassment.

Please be advised that when you are logging into UVic's learning systems or interacting with online resources and course-related communication platforms, you are engaging in a university activity.

All interactions within this environment are subject to the university expectations and policies. Any concerns about student conduct may be reviewed and responded to in accordance with the appropriate university policy.

Concerns about conduct in lectures and tutorials should be brought to your instructor. To report concerns about online student conduct, contact onlineconduct@uvic.ca.

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

Mental Health

A note to remind you to take care of yourself. Diminished mental health can interfere with optimal academic performance. Do your best to engage in self-care and maintain a healthy lifestyle this semester. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone. Support services at UVic can be found through The UVic Student Wellness Centre that provides cost-free and confidential mental health services to help you manage personal challenges that impact your emotional or academic well-being.

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 3	First day of classes
Thursday, September 11	**First day of Biology l448 Tutorials**
Tuesday, September 16	Last day for 100% reduction of tuition fees for standard first-term and full-year courses
Friday, September 19	Last day for adding courses that begin in the first term
Thursday, September 25	**Tutorial paper 1 due**
Tuesday, September 30	Last day for paying first term fees without penalty National Day for Truth and Reconciliation
Tuesday, October 07	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 13	Thanksgiving Day
Monday, October 20	**Biology 448 Midterm Exam**
Thursday, October 23	**Tutorial paper 2 due**
Monday, October 27	**Topic for Critical Analysis paper due**
Thursday, October 30	**Marking Assignment due**
Friday, October 31	Last day for withdrawing from courses without penalty of failure
Mon.-Wed., Nov. 10-12	Reading break, no classes
Thursday, November 13	**Critical Analysis paper due**
Thur/Fri, November 13/14	**Biology 448 Presentations start**
Wednesday, December 03	Last day of classes
Saturday, December 06	First day of final exam period
Saturday, 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.