Behavioural Neurobiology

BIOL 4450 Winter 2022

Instructors

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LECTURES: In this time of restricted access, all lectures will of course be online. To aid in your scheduling, all lectures are pre-recorded and posted ahead of the date in the syllabus so the course will be "asynchronous" to help balance your scheduling demands. Powerpoint lecture notes will be posted ahead of time AND a link will be provided to allow you to view the lecture recordings made using those notes. There is no requirement for students to be logged onto the TEAMS site at the class times. I will not have designated office hours because I find that 4th year students do not use those but I am happy to schedule one-on-one virtual chats if needed. There are **4 assignments (see below)** that were initially designed as "in-class" activities but have been modified for this year. You are welcome to work on those assignments individually or in groups but all students must turn in individual assignments with your own wording. I will be sure to be on the TEAMS site on assignment days should you have any questions. On the 4 "assignment" days, there is no lecture material, it is just for assignments.

TEXT: There is no required textbook for this course. If you need a text, I recommend either Behavioral Neurobiology: An Integrative Approach by Zupanc **or** Behavioral Neurobiology by Carew.

ADDITIONAL READINGS: Because you have no text, I will assign supplemental readings at various points throughout the semester. Some of these will be scientific papers for discussion, some will be review papers for your information, and some will be material I will want you to use to supplement the lecture material. You are responsible for the content of all additional readings unless they are explicitly identified as "optional". This is to help teach you how scientists get their information and how the information in textbooks comes into existence.

COURSE OBJECTIVES: This course will explore the structural, physiological, and chemical neural mechanisms responsible for animal natural behaviors. In-depth case studies will be conducted to examine how animals use these mechanisms to solve problems encountered in their specific environmental niches. The course will also help students develop appreciation of the experimental approaches used in modern neuroscience research. Topics will cover sensory processing, motor strategy, behavioral plasticity, and other related issues.

GRADES: We will follow the standard University of Windsor grading scheme as posted on the UWindsor website for this course, so no letter grades will be given and the grades will not be "curved". Exact grade breakdown is as follows:

Activity	**Percent of grade**	**Due date**
Assignment 1	5*	Jan 31
Assignment 2	5*	Feb 7
Assignment 3	5*	Mar 7
Lecture exam 1	25	Mar 9
Proposal draft	6	Mar 18
Assignment 4	5*	Mar 21
Proposal peer-review	5	Mar 25
Proposal final draft	19	Apr 7
Lecture exam 2	30	TBD

*only the best 3 out of 4 of your assignments will be weighted toward your final grade

APPROXIMATE LECTURE SCHEDULE

Date	**Topic**
Jan 17-24	Introduction and review
Jan 26	Neuromodulation
Jan 31	Assignment 1
Feb 2	Toad Visual Feature Analysis
Feb 7	Paper discussion assignment 2
Feb 9-14	Echolocation
Feb 16	Cricket song communication
Feb 21-25	Reading week
Feb 28	Locust CPG
Mar 2	Escape motor circuits
Mar 7	Assignment 3/exam review
Mar 9	**Exam 1**
March 14	Sound localization
March 16	Electric Fish sensorimotor integration
Mar 21	Assignment 4
March 23-28	*Aplysia* learning & memory
March 30-Apr 4	Spatial navigation
Apr 6-11	Migration & Homing
Apr 13	Review
TBD	**Exam II**

LECTURE NOTES: Lecture notes will be posted on the class website. The notes are **OUTLINES** of what I will cover but you will be responsible for **ALL** material presented in lecture, whether it is on the posted outlines or not. If you do not have PowerPoint you can download a PowerPoint viewer from the university website. The posted lecture notes are meant to strengthen your comprehension and save your fingers from having to write down every word

said in recorded lectures. They are not meant as a replacement for listening to lecture. Skipping lecture and trying to just rely on the posted notes is a sure way to do poorly in this class.

LECTURE EXAMS: The two lecture exams (one hourly and one final) will consist of short answer questions. Because of the nature of the semester, exams will be posted on the exam date above and remain active for 24hrs. Once you begin an exam you have 2 hrs (for exam 1) or 3 hrs (for exam 2) to complete the exam but you can take the exam anywhere within the designated 24 hrs. All work on the exams must be your own.

ASSIGNMENTS: There will be 4 in-class exercises designed to give you a hands-on experience in behavioural neuroscience principles with a series of questions to answer in conjunction with the exercises. You are encouraged to work in groups for the hands-on experience but each student is responsible for turning in their own work for the assignments. You can drop one of the 4 assignments for your final course grade so no makeups are allowed for missed assignments.

RESEARCH PROPOSAL: **No late papers are accepted**. You are required to write a 2-page research proposal for this course and also required to critique a classmate's proposal. The proposal will be a one-page research proposal in NSERC style plus a one-page description of the methods used. ***The topic for this proposal must be communicated with the GA by Feb 11 and your first draft will be due to a classmate (as assigned) on March 18.*** You will not be graded on this draft but you are required to submit one; the more work you put into making this a true draft, the better your chances to fix it will be. You will then be required to critique a classmate's draft and return comments by March 25. You then have two weeks to address comments on your proposal for final submission on April 7. If you do not have your drafts or critiques turned in by **5:00 pm on the due** date, you will receive a mark of zero for that paper.

MAKE-UP EXAMS: You are expected to take the exams on the regularly scheduled dates. Students missing exams for a legitimate reason (physician confirmed illness, verified death in the family, or other verifiable personal crisis) will be offered a make-up exam. If you are too sick to come to the exam you **MUST** submit a signed doctor's note as evidence. Make-up exams will be given **within one week** of the scheduled exam date at a mutually convenient time.

REGRADES: Every attempt will be made to grade exams and assignments completely and fairly; however mistakes do occur. If you feel a mistake has occurred or your exam was graded unfairly, you are encouraged to notify your professor. However, to avoid abusing the system some rules are needed. You have **one week after we return your exam mark** to apply for a regrade. No appeals will be considered after the one-week time limit. All requests for a regrade **must be in writing**. If you find a math error, this also must be brought to our attention within the one week time limit but does not require a written request.

PLAGIARISM: Plagiarism, submitting someone else's work as your own, **will NOT be tolerated** in this class. For the University's official policy on plagiarism, go to http://www.uwindsor.ca/aio/plagiarism-policies-and-definitions. It is your responsibility to view this link but the short version is if I find more than 5 words in your own work that are identical to another source and are without citation and quotation, you are plagiarising. All instances of plagiarism will result in a zero on the assignment, including the research paper. If you are unsure

whether what you have written is plagiarism or not, ask either myself or your GA prior to submission.