

# Biology 367 Neurobiology: Molecules to Behaviour

## Spring 2022

1

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- Office: Cunningham 259A
- Office hours: Delaney: Available for 30 minutes after each lecture or otherwise by appointment at a mutually convenient time.

Information in this outline is current as of Dec. 27, 2022 and subject to update. Any changes to the outline will be advertised in lecture and available on BrightSpaces.

**This course is offered as in-person only. Lecture Powerpoints will be posted on Brightspace in advance of lectures. Recordings of lectures will not be posted.**

• **Course objective:** To acquire knowledge of the principles of nervous system function through an understanding of the cellular properties of neurons and their integration into neural circuits to produce behavior and perception. Material learned in this course provides a foundation for upper division specialty neuroscience courses such as Sensory Neuroscience, Developmental Neuroscience and Ion Channels and Disease. Topics to be covered include:

- Structure of neurons and nervous tissue
- Electrical properties of neurons: passive and active, ion channel properties
- Synaptic transmission between neurons: presynaptic and postsynaptic elements
- Synaptic plasticity: activity and neuromodulator dependent processes
- Learning and memory: plasticity at the cellular and systems level
- Sensory Systems: transduction of sensory signals, sensory system integration
- Motor Systems: motor control and motor system dysfunction (disease and injury)
- Physiological basis for higher order neural processes – Emotion, Addiction, Sleep etc.

• **Course Evaluation:**

In Class Quiz	(15%) (0.5hrs) Feb. 02
Midterm Exam	(30%) (1.4 hrs) Feb. 16 (prior to reading break since last day to drop course is Tuesday Feb. 28)
Final Exam	(55%) (3.0 hrs) Scheduled by U/G Records

Material tested in examinations will be derived directly **from material presented in class** and related material from sections of the course textbook –see below.

• **Required course components:**

The Midterm and Final are the **required** components of the course, which need to be completed to complete the course. If a quiz is not submitted for grading the Midterm will account for 40% and the Final exam for 60% of the course grade. If the quiz is submitted but the mark is lower than the mark obtained on the subsequent midterm exam then the quiz will not be counted towards the course grade. The course grade will then be calculated based on 40% for the midterm and 60% for the final. In other words, writing the quiz can only improve, or have no effect, upon your grade.

• **Missed examinations:** If a student cannot attend the **midterm** examination they must **contact** Dr. Delaney by email or phone as soon as possible – either within 24 hours or have a good reason for not contacting within 24 hours -- to determine if a make-up exam is possible. Once the answers to the midterm are available to the class a make-up midterm exam may not be possible.

## Biology 367 Neurobiology: Molecules to Behaviour Spring 2022

2

If students are not able sit the **FINAL** examination they must inform the Dr. Delaney promptly.

If a missed final cannot be completed before the submission of the final marks to the registrar then as per university procedures an N grade will be submitted. An N grade requires submission and approval of a RAC before a DEF grade can be assigned by the registrar. A DEF is required to enable a make-up final examination to be taken and a subsequent grade change to be made. To reiterate: A student must submit a Request for Academic Concession (RAC) to enable their N grade to be changed to a DEF, (deferred grade) by the registrar in order for a deferred examination to be taken: no RAC = no DEF, no DEF = no grade change possible. An N eventually becomes an F (49%) if the course requirements are not completed.

If a missed final cannot be accommodated before the submission of final marks to the registrar then the DEF exam will normally be scheduled by Undergraduate Records during their deferred exam period in July.

• **Required text:** Purves et al, Neuroscience 5<sup>th</sup> or 6<sup>th</sup> ed.

<http://www.oupcanada.com/catalog/9781605353807.html>. Note: The changes from the 5<sup>th</sup> to 6<sup>th</sup> (even the 4<sup>th</sup>) edition are not substantial and in the event of a conflict in information between editions (there are a few minor ones) the lecture notes will usually clarify which is correct. Comparable material can be found in several substitute texts such as Principles of Neuroscience (Kandel et al.), Fundamental Neuroscience (Zigmond et al.) or Principles of Neurobiology (Quo) but it will be the responsibility of students using these texts as alternates to locate and identify the corresponding material in these texts.

• **Grading:**

Marks will be assigned consistent with University Guidelines as follows: (see <https://web.uvic.ca/calendar2017-09/undergrad/info/regulations/grading.html> )

No supplemental exams or assignments will be offered and no E grades will be awarded as per Biology Dept. Policy

Students are to attend to ADD/DROP dates published in the Academic Calender and posted on the Undergraduate Records website. See: <https://www.uvic.ca/calendar/dates/> **Students will not be dropped automatically if they do not attend lectures or exams and attendance will not be taken.** Students are responsible for checking their records and registration status.

Students requesting DEFerral of a missed **final** exam or an Aegrotat grade must contact Undergraduate Records, Main Floor, University Centre, for a “Request for Academic Concession” form. As per university procedures if you do not write the final exam by the time final marks are submitted to the registrar you will receive an ‘N’ grade, which requires submission and approval of a RAC before a DEF grade can be assigned by the registrar to allow a make-up final exam to be written and a subsequent grade change to be completed.

• **Academic Integrity:**

It is assumed that you have read and understand the material at:

<https://www.uvic.ca/students/academics/academic-integrity/index.php>. An academic integrity pledge will need to be completed prior to commencing writing of exams.