



## COURSE OUTLINE

### 1. **Course:** NEUR 411, Cellular & Systems Neuroscience - Winter 2019

Lecture 01: TR 12:30 - 13:45 in ES 920

<b>Instructor</b>	<b>Email</b>	<b>Phone</b>	<b>Office</b>	<b>Hours</b>
Willem Wildering	wilderin@ucalgary.ca	220-5283	BI 462	by appointment only
Dr. Toni-Lee Sterley	tonilee.sterley@ucalgary.ca	403 210-9307	HSC 2022	by appointment only

#### **Course Site:**

D2L: NEUR 411 L01-(Winter 2019)-Cellular & Systems Neuroscience

**Note:** Students must use their U of C account for all course correspondence.

### 2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

#### **Prerequisite(s):**

Zoology 461 and admission to the Neuroscience program, or a minimum grade of "B+" in Zoology 461.

#### **Note(s):**

- a. This course is offered as part of an honours program.

### 3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

<b>Component(s)</b>	<b>Weighting %</b>	<b>Date</b>	<b>Date due</b>
In class test 1	20%	February 7, 2019	NA
In class test 2	20%	March 14, 2019	NA
In class test 3	20%	April 11, 2019	NA
Take home assignment 1	40%	March 26, 2019	April 12, 2019

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	<b>A+</b>	<b>A</b>	<b>A-</b>	<b>B+</b>	<b>B</b>	<b>B-</b>	<b>C+</b>	<b>C</b>	<b>C-</b>	<b>D+</b>	<b>D</b>
<b>Minimum % Required</b>	96 %	90 %	85 %	80%	76%	72 %	67 %	63%	59%	54 %	50 %

Each piece of work submitted will be assigned a percentage score. A student's average percentage score for the various components listed above will be weighted as indicated above to calculate the overall percentage for the course, which will be used to determine the course letter grade. The following grading scheme identifies the maximum thresholds for letter grades that will be applied in this course. The cut-off overall percentage required for a passing grade is 50. Overall scores of less than 50 will be assigned the letter grade F.

Students will write and be evaluated on one take home assignment and three in class tests during the course. Participants will be given a minimum of 3 weeks to complete the take home assignment. The take home assignment is cumulative and will require additional study/research outside of class material. In class tests will take the form of a short (written) answer question on topic(s) addressed in preceding lectures (see weighting table above for scheduling). In class tests will commence at the start of classes (12:30 pm) and generally take no longer than 40 minutes. Note that students are responsible for notifying and making alternative arrangements with the instructor in advance when they will miss an in class test for reasons allowable under Faculty of Science "Missed Components of Term Work" regulations (see item 4. below) or as soon as possible after they have missed an in class test for legitimate reasons as specified in aforementioned regulations. Failure to do so will lead to forfeiture of points associated with the missed test(s). The final percentage grade will be calculated by summing the absolute scores for all assignments and in class tests at the end of the course. The final letter grade will be determined from the final percentage score according to the grading scale provided above.

#### 4. Missed Components Of Term Work:

In the event that a student misses the midterm or any course work due to illness, supporting documentation, such as a medical note or a statutory declaration will be required (see [Section N.1](#); for more information regarding the use of statutory declaration/medical notes, see [FAQ](#)). Absences must be reported within 48 hrs.

The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in [Section 3.6](#). It is the student's responsibility to familiarize themselves with these regulations. See also [Section E.3](#) of the University Calendar.

#### 5. Scheduled Out-of-Class Activities:

There are no scheduled out of class activities for this course.

#### 6. Course Materials:

Recommended Textbook(s):

John H. Byrne, Ruth Heidelberger, M. Neal Waxham, *From Molecules to Networks*: Academic Press.  
Dale Purves et al., *Neuroscience*: Sinauer Associates.  
John G. Nicholls et al., *From Neuron to Brain*: Sinauer Associates.  
Liqun Luo, *Principles of Neurobiology*: Garland Science.  
George F. Striedter, *Neurobiology - A Functional Approach*: Oxford university Press.  
Larry R. Squire et al., *Fundamental Neuroscience*: Academic Press.  
Eric R. Kandel, *Principles of Neural Science*: McGraw-Hill.

The course does not use textbooks, but relies heavily on self-study and online resources in the public domain. Thus, participants are strongly encouraged to make use of the many excellent supplemental study resources freely available online such as: "NeuroScience Online - an electronic textbook for the neurosciences", an open access neuroscience course provided by the Department of Neurobiology and Anatomy at the University of Texas Medical School or NeuroScience Online (<https://nba.uth.tmc.edu/neuroscience/>) or "Fundamentals of Neuroscience" offered by Harvard University (<https://www.mcb80x.org>).

While NEUR411 does not require a textbook, students may also choose to consult one or more of the many excellent textbooks in the field of neuroscience (often available in both hardcopy and digital format). See above for a list of recommended textbooks. More information on resources available in the public domain and other suggested readings will be provided in class.

## 7. Examination Policy:

There will be no final, Registrar-scheduled examination. Students will be evaluated on in-class tests interspersed throughout the course and a final comprehensive take-home assignment (see item 3 above for scheduling). The assignment will be cast in the format of a research question. While the knowledge base required for completing the assignment is laid in the lectures, additional study and literature research outside of class material will be required. Detailed expectations for each take home assignment will be communicated to students when they are handed out but will not exceed 20 pages double-spaced (1" margins etc) excluding graphics and references. In-class tests focus on subject matter treated in the preceding lectures and will take the form of short answer questions. Unless explicitly stated otherwise by the instructors, students are not allowed to consult printed or digital materials in completion of these tests. Unless mitigating circumstances as outlined in relevant sections of the Calendar apply, late submissions will not be accepted and all points for the missing essay will be forfeited (see section 3 above for weighing of individual components). Students should also read the Calendar, Section G, on Examinations.

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## 8. Approved Mandatory And Optional Course Supplemental Fees:

There are no mandatory or optional course supplemental fees for this course.

## 9. Writing Across The Curriculum Statement:

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section [E.2](#) of the University Calendar.

## 10. Human & Living Organism Studies Statements:

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

**STUDIES IN THE BSc NEUROSCIENCE PROGRAM MAY INVOLVE THE USE OF LIVING AND DEAD ORGANISMS.** Students taking laboratory- and field-based courses in these disciplines can expect involvement with and experimentation on such materials. Students perform dissections on dead or preserved organisms in some courses. In particular courses, students experiment on living organisms, their tissues, cells, or molecules. Sometimes field work requires students to collect a variety of living materials by many methods, including humane trapping.

All work on humans and other animals conforms to the Helsinki Declaration and to the regulations of the Canadian Council on Animal Care. The program strives for the highest ethical standards consistent with stewardship of the environment for organisms whose use is not governed by statutory authority. Individuals contemplating taking courses or majoring in one of the fields of study offered in the program should ensure that they have fully considered these issues before enrolling. Students are advised to discuss any concern they might have with the Undergraduate Program Director of the Department.

Students are expected to be familiar with [Section SC.4.1](#) of the University Calendar.

## 11. Reappraisal Of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **15 days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall immediately submit the Reappraisal of Graded Term work form to the department in which the course is offered. The department will arrange for a re-assessment of the work if, and only if, the student has sufficient academic grounds. See sections [I.1](#) and [I.2](#) of the University Calendar

b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University

Calendar.

## 12. Other Important Information For Students:

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see [www.ucalgary.ca/wellnesscentre](http://www.ucalgary.ca/wellnesscentre) or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The University of Calgary is committed to fostering a safe, productive learning environment. The Sexual Violence Policy (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>) is a fundamental element in creating and sustaining a safer campus environment for all community members. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email ([svsa@ucalgary.ca](mailto:svsa@ucalgary.ca)) or phone at [403-220-2208](tel:403-220-2208).
- d. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples.**
- e. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- f. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).  
  
Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Program Director of the Neuroscience Program, Dr. Willem Wildering by email [wilderin@ucalgary.ca](mailto:wilderin@ucalgary.ca) or phone 403 220-5283. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.
- g. **Safewalk:** Campus Security will escort individuals day or night (See the [Campus Safewalk](#) website). Call [403-220-5333](tel:403-220-5333) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- h. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.
- i. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca). SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). Student Ombudsman, Email:

[suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca).

- j. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.
- k. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.
- l. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.

#### **Course Outcomes:**

- Explain (electro)chemical, physical, physiological and anatomical foundations of neuronal excitability and be able to relate these principles to neuron and neuronal network functions and perturbations thereof.
- Define and classify the main molecular, cellular and circuit elements of neuron function and explain how they relate to neuron and neuronal network function.
- Describe and explain molecular, cellular and neuronal network foundations of learning and memory
- Appraise and extract information from primary research literature in the field of neuroscience.
- Analyze problems in neuroscience and formulate hypotheses and research strategies to solve those problems.
- Explain major experimental techniques in neurobiology and be able to integrate these techniques in the formulation of research strategies.
- Communicate and defend analysis of research problems and plans in writing at an advanced level using appropriate scientific methods and standards

Department Approval:

Electronically Approved

Date: 2019-01-16 16:23

Associate Dean's Approval for out of regular class-time activity:

Electronically Approved

Date: 2019-01-16 23:02