



UNIVERSITY OF CALGARY  
FACULTY OF SCIENCE  
DEPARTMENT OF BIOLOGICAL SCIENCES  
COURSE OUTLINE

1. **Course: ZOOLOGY 595 – COMPARATIVE NEUROMUSCULAR PHYSIOLOGY**

Lecture Section: L01 TR 09:30-10:45 SS 012 WINTER 2017  
Instructor: Dr. W. Wildering BI 462 220-5283 wilderin@ucalgary.ca

Course materials, announcements and other course related information will be communicated through D2L (accessible under the following URL:

D2L: ZOOL 595 L01 - (WINTER 2017) - COMP NEUROMUSCULAR PHYSIOLOGY (W2017ZOOL595L01))

Biological Sciences Department BI 186; (403) 220-3140; biosci@ucalgary.ca

2. **PREREQUISITE(S):** Zoology 461

**ANTIREQUISITE(S):** Credit for both Zoology and Neuroscience 541 will not be allowed.  
See section 3.5.C in the Faculty of Science section of the online Calendar  
(<http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html>)

3. **Grading:** The University policy on grading and related matters is described sections [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>Student presentation (30 min)</b>	<b>30 %</b>
<b>Final report (written)</b>	<b>35 %</b>
<b>Participation</b>	<b>35%</b>

There will not be a final exam scheduled by the Registrar's office.

Each piece of work (presentation and final report) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components 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. Each course participant presents a seminar on a topic commensurate with the course's goal. Participation will be graded on the basis of in class participation and questions about student presentations submitted to the course coordinator by email one day prior to each presentation.

4. **Missed Components of Term Work:** 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 himself/herself with these regulations. See also [Section E.3](#) of the University Calendar

5. **Scheduled out-of-class activities:** Dates and times of approved class activities held outside of class hours. N/A

**REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY.** If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

6. **Course Materials:** N/A

7. **Examination Policy:** Students should also read the Calendar, [Section G](#), on Examinations.

8. **Writing across the curriculum statement:** In this course, the quality of the student's writing in laboratory reports will be a factor in the evaluation of those reports. See also [Section E.2](#) of the University Calendar.

9. **Human studies statement:** See [Section E.5](#) of the University Calendar.

STUDIES IN THE BIOLOGICAL SCIENCES INVOLVE THE USE OF LIVING AND DEAD ORGANISMS. Students are expected to be familiar with <http://www.ucalgary.ca/pubs/calendar/current/sc-5-1.html> of the on-line calendar.

See also <http://www.ucalgary.ca/pubs/calendar/current/e-5.html>.

10. **OTHER IMPORTANT INFORMATION FOR STUDENTS:**

- (a) **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.
- (b) **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- (c) **Student Accommodations:** 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 [http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities\\_0.pdf](http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf).  
  
Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of Biological Sciences, Dr. H. Addy by email [addy@ucalgary.ca](mailto:addy@ucalgary.ca) or phone 403 220-3140.
- (d) **Safewalk:** Campus Security will escort individuals day or night ([www.ucalgary.ca/security/safewalk](http://www.ucalgary.ca/security/safewalk)). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- (e) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, 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 also <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **Student Union Information:** VP Academic Phone: 403 220-3911 Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca)  
SU Faculty Rep. Phone: 403 220-3913 Email: [science1@su.ucalgary.ca](mailto:science1@su.ucalgary.ca), [science2@su.ucalgary.ca](mailto:science2@su.ucalgary.ca) and [science3@su.ucalgary.ca](mailto:science3@su.ucalgary.ca);  
Student Ombuds Office: 403 220-6420 Email: [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca); <http://ucalgary.ca/provost/students/ombuds>
- (g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.
- (h) **U.S.R.I.:** At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses ([www.ucalgary.ca/usri](http://www.ucalgary.ca/usri)). Your responses make a difference - please participate in USRI Surveys.

Department Approval \_\_\_\_\_ ORIGINAL SIGNED \_\_\_\_\_ Date \_\_\_\_\_

Department Approval  
For NO Final Exam: \_\_\_\_\_ ORIGINAL SIGNED \_\_\_\_\_ Date: \_\_\_\_\_  
Z595 co W17; 12/1/2016 10:23 AM

## LEARNING OUTCOMES

This is a lecture/seminar course based on topics selected to present an overview of the organization and function of nervous and muscular systems of invertebrates with a particular focus on the evolution of the nervous system. The course will cover a range of topics that may include; mitochondrial function and dysfunction, integration/regulation of energy demand and supply, plasticity of the nervous system, limitations and adaptations of nervous/muscle system functions, the economics of cell size, metabolic aspects of muscle function and locomotion, integration of nervous system and muscle function, and neural circuit organization. Other topics will be identified during the course in consultation with all participants on the basis of their interests and learning needs. References to key concepts will be given in advance and all students are expected to gain some familiarity and understanding of the subject prior to the relevant class. Seminars will be presented by students, faculty and guest lecturers. The course adopts problem-oriented, collaborative learning methods, emphasizing student initiative, in-class participation and problem solving skills.

### Tentative 2017 Lecture Schedule

Lecture 1 –	Introduction to the course
Lecture 2 –	Evolutionary origins of neurons and nervous systems
Lecture 3 –	Does being smart come at cost?
Lecture 4 –	Neuroenergetics I: energy budget of the nervous system
Lecture 5 -	Glutamnergic synapses I: molecular foundations of learning and memory
Lecture 6 –	Glutamnergic synapses II: performance and energy budget.
Lecture 7 -	Neuroenergetics II: economy of nervous system function and structure.
Lecture 8 –	Biophysical determinants of nervous system and sensory performance
Lecture 9 –	Primer to functional diversity ion channels
Lecture 10 -	Visual ecology of insects: electrophysiology of visual speed and sensitivity.
Lecture 11 –	Guest lecture on topic to be determined
Lectures 12-24 –	Student presentations on topics commensurate with course theme.

Note: topics of lectures may be varied without prior notice depending on instructional needs of class participants

### Grading Scale

96 = A+
89 = A
83 = A-
77 = B+
72 = B
67 = B-
63 = C+
59 = C
55 = C-
51 = D+
45 = D
Below 45 - F