UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
NEUROSCIENCE PROGRAM
COURSE OUTLINE

1. **Course:** NEUR 421, Neuroscience: History, Ethics and Society -- Fall 2018

Instructor Name	Email	Phone	Office	Hours
L01: (TR 09:30 - 10:45 in SA 247)				
Andrew Bulloch	bulloch@ucalgary.ca	403 220-4586	TRW 4D67	By appointment
Keith Sharkey	TBA	TBA	TBA	TBA
Manuel Hulliger	TBA	TBA	TBA	TBA

Additional Instructors, personal meetings by appointment only:

Manuel Hulliger TRW 4D67 tel: 403 220-4601 email: mhullige@ucalgary.ca

Keith Sharkey HSC 2035 tel: 403 220-4601 email: ksharkey@ucalgary.ca

Guest lecturers, not available for personal meetings:

Bruce Pike HMRB 193 tel: 403 220-4026 email: bruce.pike@ucalgary.ca

Cam Tesky HSC 2103 tel:403 220-4962 email: gtesky@ucalgary.ca

Course Site:

D2L: NEUR 421 L01-(Fall 2018)-Neur Sci: Hist, Ethics & Sct'y

Neuroscience Program:
Office: EEEL 445
Phone: 403 220-8600
Email: bscneuro@ucalgary.ca

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): 48 units (8.0 full-course equivalents) and admission to the major in Neuroscience, Biological Sciences, Health Science or Psychology.

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:

Component(s)	Weighting %	Date
Term paper -1 (midterm)	20%	30 Oct
Term paper -2 (final)	30%	Dec 7
Student presentations-1: Neuroethics, with written summary	20%	See Evaluation
Student presentations-2: Free Topic, with written summary	25%	See Evaluation
Student Participation	5%	See Evaluation

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.

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

This course has a registrar scheduled final exam.

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/themself 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:**

Required Textbook(s):

Stanley Finger, *Origins of Neuroscience: a history of explorations into brain function (2005)*: Oxford University Press .

Recommended Textbook(s):

Stanley Finger, *Minds behind the Brain: a history of the pioneers and their discoveries. Online text (2005)*: Oxford University Press .
Jürgen Tesak & Chris Code, *Milestones in the history of aphasia: theories and protagonists. Online text (2008)*: Taylor and Francis .

7. **Examination Policy:**

No aids are allowed on tests or examinations.

Late term papers and written summaries of presentations will be subject to a 5% deduction for each day late

Students should also read the Calendar, Section G, on Examinations.

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.

1. **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, orof 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

2. **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 or call 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) or phone at 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 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 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 Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: 403-220-3913 Email: sciencerep@su.ucalgary.ca. Student Ombudsman, Email: 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.

Neuroscience 421: History, Ethics and Society

FALL 2018: Syllabus

Week 1: Thursday 6th September

- Introduction to the course and the faculty. Expectations, course grading scheme, evaluations, appeals, student expectations of the course. **AB**

Presentation skills. **MH**

Week 2: Tuesday 11th and Thursday 13th September

- 1. - Guidelines for term papers and oral (audio-visual) presentations. **MH**
- Neuroethics approaches. **MH**
- Library information. **NH**

- 2. The discovery of the brain, brain regions and their functions, the nervous system. **AB**

Week 3: Tuesday 18th and Thursday 20th September

- 3. The discovery of the neuron, cell theory, from Cajal to the neuron doctrine. **AB**

- 4. The synapse, chemical transmission. **KS**

Week 4: Tuesday 25th and Thursday 27th September

- 5. Learning and memory, neuroplasticity. **KS**
  - Topics in Neuroethics - 1. Student presentations. **AB, MH, KS**

Week 5: Tuesday 2nd and Thursday 4th October

  - Topics in Neuroethics - 2. Student presentations. **AB, MH, KS**
- Topics in Neuroethics - 3. Student presentations. **AB, MH, KS**

Week 6: Tuesday 9th and Thursday 11th October

- 6. Neural stem cells. **KS**

- 7. Sensation and Perception. **MH**

Week 7: Tuesday 16th and Thursday 18th October

- 8. Neural control of movement. A history of observations and concepts. **MH**

  - 9. Todd's Paresis. **CT**

Week 8: Tuesday 23th and Thursday 25th October

- 10. History of speech neuroscience – from the beginnings to the first milestones of the 19th century. **MH**
  - 11. History of speech neuroscience – highlights from the last 150 years. **MH**

Week 9: Tuesday 30th October and Thursday 1st November

- 12. Structural and functional brain imaging. **BP**
- 13. Functional imaging of language - scope, limitations and challenges ahead. **MH**

Week 10: Tuesday 6th and Thursday 8th November

- 14**.** Mathematical modeling of neuronal systems. **MH**
- 15. The emotional brain. **AB**

Week 11: Reading week (November 11th – 18th)

Week 12: Tuesday 20th and Thursday 22nd November

- 16. Neuroscience in society. **AB**
- 17. Mental illnesses. History and mechanism. **AB**

Week 13: Tuesday 27th and Thursday 29th November

- 18. Music and the brain. **AB**
- Student presentations – 1. **AB, MH, KS**

Week 14: Tuesday 4th and Thursday 6th December

- Student presentations – 2. **AB, MH, KS**
- Student presentations – 3. **AB, MH, KS**

Department Approval: Electronically Approved **Date:** 2018-08-30 09:21

Course Outcomes

- Delineate how the brain, including the emotional brain, and its major regions were discovered from ancient times
- Critique the full history of the so called Neuron Doctrine
- Emphasize the brain as a metaphor throughout medical history
- Explain the cultural context of neuroscience and compare several societal issues that arise from neuroscience advances
- Describe the neural bases, sensation, perception, movement, speech, and music with an historical perspective
- Detail historical and modern approaches for visualizing and studying the brains of animals and people, with emphasis on advantages and limitations of each.
- Comprehend the characteristics and diagnosis of major mental disorders with an historical and societal perspective