Course Outline

**MEDS 487 / NRSC 500B / NRSC 600B**

**Advanced Topics in Cognitive Neuroscience**

Time & Location: Mondays and Thursdays from 9:00 to 9:50 am. Classroom will be DSB C108.

Purpose: To provide students with a foundational basis in neuroscience, spanning the spectrum from cognitive to perceptual to motor neuroscience.

Optional Textbook: Kandel, E., Schwartz, J., Jessel, T., Siegelbaum, S., & Hudspeth, A. J. (Eds.). (2012). *Principles of Neural Science, Fifth Edition*. New York: McGraw Hill.

Other material: Neuroanatomy notes, assigned research papers, and lecture slides (at the discretion of each block instructor) will be posted on http://www.krigolsonteaching.com/neuro500.html

Instructors: Dr. Olave E. Krigolson, [krigolson@uvic.ca](mailto:krigolson@uvic.ca), and Chad C. Williams, [ccwillia@uvic.ca](mailto:ccwillia@uvic.ca)

Administration: For general course administration please contact our Neuroscience Program Graduate Secretary:

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Organization: The course is separated into 3 units: Cognition (1), Perception (2), and Motor Systems (3).

Units 1-3: Cognitive, Perception, and Motor Neuroscience

Each block can include: a) lectures highlighting key concepts from the textbook and providing students with the opportunity to ask questions and solidify understanding and b) a group critical analysis of 1 or 2 assigned research papers.

Lecturers will provide leading questions for discussion. E.g.: What was the driving research question for this study? Explain the methods used to test the hypothesis? Do the data in this figure support the conclusions made by the authors (why or why not)?

Students will write a quiz based on the assigned readings and informed by target questions at the start of each class. These quizzes will be equally weighted and worth 25% of the course grade. Students that are not present for a quiz will receive a score of zero unless the absence is approved in advance by the course instructor.

Each unit will end with a one-hour exam comprised of questions covering the assigned textbook readings, the lectures and the discussion material from each of the blocks in the unit. The block instructors will provide and mark the questions from their respective blocks. Note, there will be a final exam during the university exam period but this is simply an opportunity to re-write previous exams to improve your standing.

Evaluation:  
Quizzes: 25%  
Unit 1 Exam (Cognition): 25%  
Unit 2 Exam (Perception): 25%  
Unit 3 Exam (Motor Systems): 25%  
Total: 100%

Exams: You are responsible for attending exams as scheduled. If you miss an exam for a valid, documented reason (e.g., illness, accident) you *may* be permitted to write a make-up test at the co-organizers’ discretion. Unexcused missed examinations will be assigned a score of zero.

Grades: Your final letter grade will be based on your total percent score according to the standardized UVic Faculty of Graduate Studies Grading Scale (attached).

Course Schedule

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| Unit 1 | Room  DSB | Cognition | **Reading** |
| **January 6th** | C108 | Cognitive Neuroscience: Introduction |  |
| **January 9th** | C108 | Lecture: Memory | Baddeley (2012) |
| **January 13th** | C108 | Seminar: Memory | Osaka et al. (2007) |
| **January 16th** | C108 | Lecture: Learning | Schultz (2016) |
| **January 20th** | C108 | Seminar: Learning | Schultz et al. (1997) |
| **January 23rd** | C108 | Lecture: Decision Making | Kool et al. (2017) |
| **January 27th** | C108 | Seminar: Decision Making | Williams et al. (2019) |
| **January 30th** | C108 | Unit 1 Exam (25%) |  |
| Unit 2 | Room  DSB | Perception | **Reading** |
| **February 3rd** | C108 | Sensory Neuroscience: Introduction |  |
| **February 6th** | C108 | Lecture: Ventral Stream | TBD |
| **February 10th** | C108 | Seminar: Ventral Stream | TBD |
| **February 13th** | C108 | Lecture: Dorsal Stream | TBD |
| **February 17th** | C108 | READING BREAK |  |
| **February 20th** | C108 | READING BREAK |  |
| **February 24th** | C108 | Seminar: Dorsal Stream | TBD |
| **February 27th** | C108 | Lecture: Attention | TBD |
| **March 2nd** | C108 | Seminar: Attention | TBD |
| **March 5th** | 179 | Unit 2 Exam (25%) |  |
| Unit 3 | Room  DSB | Motor Systems |  |
| **March 9th** | C108 | Motor Neuroscience: Introductions | TBD |
| **March 12th** | C108 | Lecture: Reflexes | TBD |
| **March 16th** | C108 | Seminar: Reflexes | TBD |
| **March 19th** | C108 | Lecture: Gait | TBD |
| **March 23rd** | C108 | Seminar: Gait | TBD |
| **March 26th** | C108 | Lecture: Goal Directed Action | TBD |
| **March 30th** | C108 | Seminar: Goal Directed Action | TBD |
| **April 2nd** | 179 | Unit 3 Exam (25%) |  |