

COURSE OUTLINE

MEDS 487 / NRSC 587 / NRSC 687

Advanced Topics in Motor, Perceptual, and Cognitive Neuroscience

Time & Location: Wednesdays from 4 to 6:30pm. Class room will be MCK 179.

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

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.krigolesonteaching.com/neuro-500.html>

Instructor: This course is taught by Dr. Olave E. Krigolson, krigoleson@uvic.ca. For certain administrative questions you may wish to contact the course coordinators:

- o Craig Brown, brownc@uvic.ca, Medical Sciences
- o Leigh Anne Swayne, lswayne@uvic.ca, Medical Sciences

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

- o dmscsec@uvic.ca, 250-853-3129, MSB 214

Organization: The course is separated into **3 units:** The Motor System (1), Perception (2), and Cognitive (3)

Units 1-3: Motor, Perception, and Cognitive 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 two-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 (Motor System):	25%
Unit 2 Exam (Perception):	25%
Unit 3 Exam (Cognitive):	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

UNIT 1	ROOM MCK	MOTOR CONTROL (CLASSES 4:00-6:30PM)	Reading
January 9th	179	Sensory and Motor Neurons	34
	179	Reflexes	35, 36
January 16th	179	Postural Control	40, 41, 43
	179	Goal Directed Action	33, 37
January 23rd	179	Online Control	38
	179	Forward and Inverse Models	42
January 30th	179	UNIT 1 EXAM (25%)	
UNIT 2	ROOM MCK	PERCEPTION (CLASSES 4:00 -6:30PM)	
February 6th	179	Primary Visual Cortex	27
	179	Vision for Action	29
February 13th	179	Vision for Perception	28
	179	Somatosensation	22
February 20th	179	Attention (Done out of Class Time)	29
February 27th	179	UNIT 2 EXAM (25%)	
UNIT 3	ROOM MCK	COGNITIVE (CLASSES 4:00 -6:30PM)	
March 6th	179	Neuroimaging Methods	20
	179	Executive Control	67
March 13th	179	Working Memory	65
	179	Long Term Memory	65
March 20th	179	Emotion	48
	179	Learning	65
March 27th	179	Decision Making	TBD
	179	Consciousness	18
April 3rd	179	Neural Networks	Appendix E
	179	Computational Neuroscience	Appendix F
April (TBD)	179	UNIT 3 EXAM (25%)	