

ANAT 321
Circuitry of the Human Brain
2019

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Course Content

ANAT 321 (*Circuitry of the Human Brain*) examines how the anatomical organization of the human brain determines its function. The course begins with a broad overview of the organization of the nervous systems. We then work our way methodically from the spinal cord to the forebrain, addressing the brain systems responsible for sensory perception, movement, cognition, motivation and emotion and learning and memory.

The class meets Mondays, Wednesdays and Fridays, from 1:35 – 2:25 in M1, Strathcona. There is no required text; however, there are three reading assignments, which are available on mycourses.

Reading	Due date
Bullmore E and Sporns O (2012) The economy of brain network organization <i>Nature Reviews Neuroscience</i> 13 :336 – 349.	September 30
Scott, SH (2006) Converting thoughts into action. <i>Nature</i> 442 :141 – 142.	November 1
Greene J (2003) From neural “is” to moral “ought”: what are the moral implications of neuroscientific moral psychology? <i>Nature Reviews Neuroscience</i> 4 :847- 850.	November 18

Each reading is associated with a short written assignment, as described below.

Evaluation

Multiple-Choice Exams (95%)

Midterm: 35%, Oct 16, 6:00 – 8:00 PM

Final exam: 60%, TBA

Readings (3%)

Each reading is associated with a short written assignment, which is due no later than midnight on the due-date indicated in the above table. The written assignment for each reading will answer the following three questions (no more than two sentences per question):

1. *What is the main point of this article?*
2. *What is one thing you learned from reading this article?*
3. *What is one thing you did not understand or found especially challenging about this article or one question you would like to ask the authors?*

Each assignment will be graded pass-fail and will be worth 1% of the total grade. The assignments will be due before midnight on the dates indicated above.

Final written assignment (2%)

A short (< 150 words) written assignment worth 2 points will be due on December 3. The details of the assignment will be given in class.

Course Outline

Date	Topic
Sept 4	Introduction to Neuroanatomy
Sept 6	Introduction to Sensory Systems
Sept 9	Spinal cord and brainstem
Sept 11	Spinal cord and brainstem
Sept 13	Spinal cord and brainstem/thalamus and internal capsule
Sept 16	Thalamus and internal capsule
Sept 18	Thalamus and internal capsule
Sept 20	Cerebral cortex
Sept 23	Cerebral cortex
Sept 25	Cerebral cortex
Sept 27	Cerebral cortex
Sept 30	Cerebral cortex/visual system
Oct 2	Visual system
Oct 4	Visual system
Oct 7	Visual system
Oct 9	No Class
Oct 11	Visual system
Oct 14	Thanksgiving
Oct 16	Midterm review
Oct 18	Visual system/olfactory system
Oct 21	Olfactory system
Oct 23	Motor systems
Oct 25	Motor systems
Oct 28	Motor systems
Oct 30	Motor systems
Nov 1	Basal ganglia
Nov 4	Basal ganglia/cerebellum
Nov 6	Cerebellum
Nov 8	Cerebellum
Nov 11	Frontal lobes and executive function
Nov 13	Executive function
Nov 15	Executive function/motivation and emotion
Nov 18	Motivation and emotion
Nov 20	Motivation and emotion/learning and memory
Nov 22	Learning and memory
Nov 25	Learning and memory
Nov 27	Blood flow and meninges
Nov 29	Video: dissecting a human brain
Dec 2	Neuroscience of consciousness and conscious will
Dec 3	Final exam review

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