

BEHAVIORAL NEUROBIOLOGY (3330)  
Spring, 2020

- INSTRUCTOR: Dr. Gary Rose
- TEACHING ASSIST. Jeremy Klingler 801-585-7756 ([Jeremy.klingler@utah.edu](mailto:Jeremy.klingler@utah.edu))
- CLASS LECTURES: 9:10-10:30 Tues, Thurs ASB 210
- OFFICE HOURS: Tues. 1-2 PM
- WEBSITE: <http://courses.biology.utah.edu/rose/bio3330>  
Course lecture outlines and other materials are available here.
- EXAMS: Three midterms, no comprehensive Final.
- TEXT: (required) NEUROSCIENCE: Exploring the Brain. Bear et al.
- COURSE PLAN: This course will provide a broad coverage of how the nervous system produces behavior. We will start with a brief overview of basic neurobiology, such as how membrane potentials and action potentials are generated, along with some basic neuroanatomy. The remainder of the course will focus on how nervous systems generate and control behavior.
- GRADING: If you miss a midterm, you will receive a '0' on it unless you have a doctor's written explanation of why you could not take the exam. In this case, an essay makeup exam will be given. **Your final grade will be based on the highest score of the first 2 midterms and the score of the 3rd midterm (e.g., scores of midterms 1&3 or 2&3).**

The University seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the instructor and to the Center for Disability Services,

162 Olpin Union Building, 581-5020 (VP) to make  
arrangements for these accommodations.

All written information in this course can be made available in  
alternative format with prior notification.

Accommodations: The instructor does not grant content accommodation requests as the course content fulfills legitimate pedagogical goals.

Expected Learning Outcomes:

- 1) Introduce students to concepts in neurobiology that enables them to understand how the central nervous system controls behavior.
- 2) Learn basic properties of nervous systems, such as how cells establish resting potentials, action potentials and synaptic transmission.
- 3) Learn the general anatomical organization of the central and peripheral nervous systems, and the relevance of particular structures and pathways to behavior.
- 4) Learn how sensory information is represented and processed in visual, auditory, chemosensory and somatosensory systems.
- 5) Learn how neural circuits control motor behavior and how information about planned motor behavior is organized in brain regions.
- 6) Learn the types of memories and how they are formed, including identifying the brain structures that are responsible for consolidating particular types of memories.
- 7) Learn how early experience shapes the functional organization of the brain, and how functional limitations result from restricted experience.
- 8) Assimilate information concerning the neurobiological bases of mental disorders and the actions of therapeutic agents and approaches in addressing dysfunction.
- 9) Expose students to the societal relevance of information concerning the neurobiological bases of behavior.

## LECTURES

<u>DATE</u>	<u>TOPIC</u>	<u>READING</u>
7-Jan.	Intro., Neuron Structure	Chapters 1&2
9-Jan.	The Membrane Potential	Ch. 3
14-Jan.	The Action Potential	Ch. 4
16-Jan.	Synaptic Transmission	Ch. 5
21-Jan.	Neurotransmitter systems	Ch. 6
23-Jan.	Structure of the Nervous System	Ch. 7, & Appendix
28-Jan.	Structure of the Nervous System	
30-Jan.	Intro & The Chemical Senses	Ch. 8

Feb 4.	The Visual System : Eye	Ch. 9
Feb 6.	The Central Visual System	Ch. 10
Feb 11.	FIRST MIDTERM	
Feb 13.	The Auditory & Vestibular Systems	Ch. 11
Feb 18.	The Somatosensory System	Ch. 12
Feb 20.	Motor Systems: Spinal Cord	Ch. 13
Feb 25.	Brain Control of Movement	Ch 14 & Saccadic eye move. reading
Feb 27.	Neuroendocrine and Modulatory Systems	Ch 15
Mar 3.	Motivation	Ch. 16
Mar 5.	Sex and the Brain	Ch 17
Mar 8-15:	-Spring break-	
Mar 17.	Brain Mechanisms of Emotion	Ch. 18
Mar 19.	MIDTERM #2	
Mar 24.	Brain Rhythms and Sleep	Ch 19
Mar 26.	Language	Ch. 20
Mar 31.	Attention Mechs.	Ch. 21
Apr 2.	Mental Illness	Ch. 22
Apr 4.	Developmental Plasticity	Ch. 23

Apr 9.	Memory Systems	Ch. 24
Apr 14.	Mechanisms of Learning & Memory	Ch. 25
Apr 16.	Mechs of Learning and Memory (cont.)	Ch. 25
Apr 21.	MIDTERM #3	