

BIOLOGY 3411, FALL 2009
Principles of the Nervous System

Class Schedule
Monday, Wednesday, Friday - Rebstock 215
Class begins on Wednesday August 26
10:00 am – 11:00 am

Instructors: Dr. Larry Salkoff (coursemaster)	362-3644	salkoffl@pcg.wustl.edu
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- **Textbook required:** - **NEUROSCIENCE** by Purves, et al. (4th Edition)
- **Reference:** - **THE BRAIN ATLAS** by Woolsey, Hanaway and Gado (3rd Edition) - copies are on reserve in Olin Library.
- **Website:** <http://artsci.wustl.edu/~sdanker/index.html>
- <http://www.nslc.wustl.edu/courses/Bio3411/bio3411.html>

A. Introduction to & Overview of the Nervous System

Aug. 26 (Wed.) Lecture I: Introduction to the Course (**L. Salkoff**).

Aug. 28 (Fri.) Lecture II: The Nervous System and Its Cells (**T. Woolsey**).

B. Development (T. Woolsey)

Aug. 31 (Mon.) Lecture III: Nervous System Embryology

Sept. 2 (Wed.) Lecture IV: Mechanisms of Neural Development

Sept. 4 (Fri.) *Discussion 1*

Sept. 7 (Mon.) **Labor Day, No Class**

Sept. 9 (Wed.) Lecture V: Cell Birth and Death

Sept. 11 (Fri.) *Discussion 2*

Sept. 14 (Mon.) Lecture VI: Making Connections

Sept. 16 (Wed.) Lecture VII: CNS Patterning

Sept. 18 (Fri.) *Discussion 3*

Sept. 21 (Mon.) Lecture VIII. Emergent Brain Structure

C. Brain Pathways and Functions (T. Woolsey)

Sept. 23 (Wed.) Lecture IX: Spinal Cord, Reflexes and Pathways

Sept. 25 (Fri.) *Discussion 4*

Sept. 28 (Mon.) Lecture X: Sensation and Movement

Sept. 30 (Wed.) Lecture XI: Integrating Functions

Oct. 2 (Fri.) *Discussion 5*

Oct. 5 (Mon.) Lecture XII: Experience and Critical Periods. (aka, Plastics)

D. Lessons from Brain Disorders (T. Woolsey)

Oct. 7 (Wed.) Lecture XIII: Brain Diseases I

Oct. 9 (Fri.) Lecture XIV: Brain Diseases II

Oct. 12 (Mon.) Lecture XV: Genetics and Human Brains: Clues from Abnormalities

Oct. 14 (Wed.) Lecture XVI: Reflections on Higher Brain Functions (**L. Salkoff**).

Oct. 16 (Fri.) Fall Break-No Class

Oct. 19 (Mon.) *Discussion 6*

Oct. 21 (Wed.) Review Session

Oct. 23 (Fri.) Midterm Exam

E. Electrical Properties of the Brain (L. Salkoff)

Oct. 26 (Mon.) Lecture XVII: Membranes and Bioelectricity

Oct. 28 (Wed.) Lecture XVIII: The Resting Potential

Oct. 30 (Fri.) *Discussion 7*

Nov. 2 (Mon.) Lecture XIX: Voltage-Gated Ion Channels

Nov. 4 (Wed.) Lecture XX: Ion Channels and Action Potentials

Nov. 6 (Fri.) *Discussion 8*

Nov. 9 (Mon.) Lecture XXI: Diversity of Ion Channels

F. The Synapse and Complex Electrical Behavior (L. Salkoff)

Nov. 11 (Wed.) Lecture XXII: Chemical Transmission: Ligand-gated Ion Channels

Nov. 13 (Fri.) *Discussion 9*

Nov. 16 (Mon.) Lecture XXIII: Synaptic Potentials/Synaptic Integration
Nov. 18 (Wed.) Lecture XXIV: Heterogeneity of Neurotransmitters and Receptors
Nov. 20 (Fri.) Discussion 10
Nov. 23 (Mon.) Lecture XXV: Synaptic Plasticity – LTP

Nov. 25 (Wed.) Thanksgiving break - No Class

Nov. 28 (Fri.) Thanksgiving break - No Class

Nov. 30 (Mon.) Lecture XXVI: Learning and Memory
Dec. 2 (Wed.) Lecture XXVII: Ion Channels and Disease, Natural Genetic Variation and Human Behavior
Dec. 4 (Fri.) *Discussion 11 and Review*

G. Final Review - Dec. 7 (Mon.)

H. Final Exam - Dec. 15 (Tues.) 215 Rebstock (10:30 am – 12:30 pm)