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Fall 9-1-2005

# BMED 661.01: Neuroscience I

Diana Lurie

*University of Montana - Missoula*

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# Neuroscience I BMED 661

Fall Semester 2005

- Coordinator MT:** Diana Lurie, University of Montana, Department of Biomedical and Pharmaceutical Sciences, Skaggs Building Room SB304, 406-243-2103, (email) [diana.lurie@umontana.edu](mailto:diana.lurie@umontana.edu)
- Coordinator AK:** Thomas Kuhn, Annex I, Natural Science Facility, 907-474-5752, [fftbk@uaf.edu](mailto:fftbk@uaf.edu)
- Coordinator MSU:** Alex Dimitrov, Dept of Cell Biology and Neuroscience, 406-994-6494, [alex@cns.montana.edu](mailto:alex@cns.montana.edu)
- Lecture:** Tuesday 3pm - 5 pm  
Thursday 3 pm – 5 pm  
DHC 023
- Textbook:** *Fundamental Neuroscience* (2003) 2<sup>nd</sup> Edition  
Ed. Squire, Bloom, McConnell, Spritzer, Zigmond

## Course

This 4 credit collaborative course with Montana State University and the University of Alaska—Fairbanks will provide a comprehensive overview of the architecture and function of neurological systems in mammals, particularly humans. Each topic will address known or suspected pathologies and there will be clinical lectures. This course will be taught using Access Grid Node, an audio/video internet broadcasting system. Topics addressed will include Neuroanatomy, Neurodevelopment, Cellular neuroscience, Neuropharmacology, Electrical properties of cells and neurotransmission, computational neuroscience.

## Course Goals:

- Develop an understanding of the function of fundamental neurological systems.
- Understand the development and physiology of the Nervous System.
- Appreciate the organization and function of neural circuits.

## Learning Outcomes

1. integrative function of several fundamental neurological systems
2. development of the nervous system
3. Electrical properties of cells
4. cellular properties of neural cells
5. computational methodology

## Instructional Methods:

The teaching methods employed in this collaborative course will include lectures by several instructors from UM, MSU, and UAF. Discussion will be integrated to relevant topics. The entire course will

employ video/audio conferencing technology (Access Grid Node) connecting students and instructors from the three institutions. Blackboard will serve for both students and instructors as a communication and distribution platform.

### **Grading**

There will be three take home exams (100 points each) and an in class presentation (100 points). Class participation will be included in the final grade (25 points).

### **Point Distribution**

Take Home Exam I	100 pts
Take Home Exam II	100 pts
Take Home Exam III	100 pts
Presentation	100 pts
Class participation	25 pts

**Total** 425 pts

### **Course Policies**

*Attendance:* Regular student attendance is expected to engroup activities and discussions. Active student participation is expected and will be taken into account in the final evaluation/grading.

*Exams:* Three take home exams will be given. These exams will be a combination of long and short answer questions. Makeup exams will only be allowed with pre-approval of the instructor or with an acceptable, documented reason such as unexpected illness, family emergencies or other unavoidable events.

### **Plagiarism Policy**

Plagiarism is defined as the use of “other” intellectual property without proper reference to the original author. Intellectual property includes all electronic, spoken or print media. Students are expected to cite all sources used in oral and written presentations. Cases of plagiarism will be taken seriously with a grade 0 for the particular assignment. Severe cases may be referred to the Department Chair or Dean or class failing considered.

<b>Date</b>	<b>Lecture</b>	<b>Topic</b>	<b>Instructor</b>
August 30	1	Introduction/History of Neuroscience	Lurie-UM
Sept 1	2	Vertebrate Neuroanatomy	Lurie (coord) UM
Sept 6	3	Vertebrate Neuroanatomy	Lurie (coord) UM
Sept 8	4	Vertebrate Neuroanatomy	Lurie (coord) UM
Sept 13	5	Invertebrate Neuroanatomy	MSU
Sept 15	6	Neuroanatomy lab (on each separate campus)	
Sept 20	7	Electrical Properties of cells	Kavanaugh--UM
Sept 22	8	Electrical Properties of cells	Kavanaugh--UM
<b>Sept 27</b>	<b>9</b>	<b>Discussion Session/1<sup>st</sup> Take home Exam</b>	

Sept 29	10	Synaptic Transmission	Kavanaugh--UM
October 4	11	Synaptic Transmission	Kavanaugh--UM
October 6	12	Synaptic Transmission	Kavanaugh--UM
October 11	13	Synaptic Transmission	Kavanaugh--UM
October 13	14	Cellular Neuroscience	Kuhn-UAF
October 18	15	Cellular Neuroscience	Kuhn-UAF
October 25	16	Cellular Neuroscience	Kuhn-UAF
October 27	17	Neuropharmacology	Patel-UM
November 1	18	Neuropharmacology	Patel-UM
<b>November 3</b>	<b>19</b>	<b>Discussion Session/ 2<sup>nd</sup> take home exam</b>	
November 8	20	Neuropharmacology	Patel--UM
November 10	21	Developmental Neuroscience--Intro	Kuhn--UAF
November 15	22	Developmental Neuroscience--Intro	Kuhn--UAF
November 17	23	Developmental Neuroscience	MSU
November 22	24	Developmental Neuroscience	MSU
<b>November 24</b>		<b>Thanksgiving Holiday</b>	
November 29	25	Developmental Neuroscience	MSU
December 1	26	Hippocampal Circuitry	MSU
December 6	27	Hippocampal Circuitry	MSU
<b>December 8</b>	<b>28</b>	<b>Discussion Session/ 3<sup>rd</sup> take home exam</b>	