PT 536 NEUROSCIENCE  
Spring Semester 2003, 5 credits

Instructor:
Chuck Leonard, Ph.D., P.T.
108 Skaggs, Ext 2710
leonard@selway.umt.edu

Class hours: 10:10-12:00 Tue., Wed. and Fri. in SB 113 (Lab in SB 020 and 050 as needed)

Required Textbooks:

Additional References:
Faculty Packet
Lab Materials
Handouts
Other recommended reading

Evaluation of Student Performance:
Classroom attendance is voluntary. Students are responsible for all material covered in lectures and laboratory/study group activities. Assigned textbook readings are meant to assist the student in their comprehension of course material. The student’s grade will be based on four examinations. The first and third examinations (50 points each) will be one hour long and include only written portions. The second (midterm) and fourth (final) examinations (100 points each) will be two hours long and include written and photographic slide practical sections. The midterm and final examinations will be comprehensive, covering all the material presented in the course to that point. Course grades will be determined as follows: A = 90-100%, B = 80-89%, C = 70-79%. Attainment of a test score of less than 70% will require the student to retake the examination. If the student does not obtain a 70% or greater on the retake examination, they will fail the entire course and have to retake the course the next time it is offered.

Laboratory Activities: Students will need to provide their own examination gloves and white lab coat for participation in activities using cadaver material.
Course Schedule:
1/28 Tue.
   10:10 Introduction; Nolte 1-36, Leonard 1-20
   11:10 Superficial features of the brain; Nolte 53-66
1/29 Wed.
   10:10 Lab:
   11:10 Lab continued
1/31 Fri.
   10:10 Nervous system development; Nolte 37-52, Leonard 124-128
   Disorders of neuroembryonic development
2/4 Tue.
   10:10 Blood supply of the brain and spinal cord; Nolte 119-146, 255-257
   11:10 Review meningeal coverings, ventricles and CSF, meningitis/encephalitis;
   Nolte 79-97, 98-117.
2/5 Wed.
   10:10 Lab: Meninges, ventricles and arteries
   11:10 Lab continued
2/7 Fri.
   10:10 Histology and organization of cerebral cortex; Leonard 102-133
   11:00 Neural response to damage
2/11 Tue.
   10:10 Cerebral vascular disease
   11:10 Support cells
2/12 Wed
   10:10 Anatomy of the spinal cord; Nolte Chapter 10
   11:10
2/14 Fri.
   10:10 Neurophysiology
   11:10 Neurotransmission, Multiple sclerosis, Guillain Barre Syndrome;
2/18 Tue.
   10:10 Receptor physiology and Neuromuscular pathology
   11:10 GTO and muscle spindles; Nolte 210-214, Leonard 20-30
2/19 Wed.
   10:10 Lab: Sensory systems; Nolte Chapter 9
   11:10 Lab continued
2/21 Fri.
   10:10 Sensory systems continued (pathways)
   11:10 Review
2/25 Tue.
   10:10 Examination 1
2/26 Wed.
   10:10 Lab: Neurological evaluation – reflex testing
   11:10 Lab continued
2/28 Fri
   10:10 Spinal cord clinical questions
3/4 Tue
   10:10 Autonomic nervous system
   11:10 Limbic system
3/5 Wed
   10:10 Study groups – peripheral and spinal cord lesions
   11:10 Study groups continued
3/7 Fri
   10:10 Brainstem
3/11 Tue
   10:10 Brainstem
3/12 Wed
   10:10 Cranial nerves
3/14 Fri
   10:10 Cranial nerves
3/18 Tue
   10:10 Review
3/19 Wed
   10:10 **Midterm**
3/21 Fri
   No Class (Reading day)

**3/22-31/02 Spring Break**

4/1 Tue
   10:10 Visual pathways
   11:10 Visual deficits; Nolte 511-524
4/2 Wed
   10:10 Lab: Neurological evaluation – cranial nerve testing
   11:10 Lab continued
4/4 Fri
   10:10 Vestibular system
4/8 Tue
   10:10 Vestibular deficits and testing
4/9 Wed
   10:10 Basal ganglia
   11:10 Parkinson, dystonia, Huntington diseases, pharmacology
4/11 Fri
   10:10 Videotape: Common movement disorders
   11:10 Videotape continued
4/15 Tue
  10:10 Cerebellar anatomy; Nolte 486-509, Leonard 49-58
  11:10 Cerebellar function
4/16 Wed
  10:10 Cerebellum
  11:10
4/18 Fri
  10:10 Cerebellar dysfunction
  11:10 Diencephalon; Nolte 386-409, Leonard 59-63

4/22 Tue
  10:10 Examimation 3
  11:10 Diencephalon continued
4/23 Wed
  10:10 Lab: Neurological evaluation – motor function and functional activities
  11:10 Lab continued
4/25 Fri
  10:10 Cerebrum; Nolte 525-555, Leonard 63-65
  11:10 Cerebrum continued
4/29 Tue
  10:10 Role of cerebral cortex in movement; Leonard 102-139
  11:10 The neuroscience of motor learning; Leonard 203-226
4/30 Wed
  10:10 Lab: Neurological evaluation – Case studies
  11:10 Lab continued (Brain scans) Leonard 104-109
5/2 Fri
  10:10 Reading day
5/6 Tue
  10:10 Motor systems
  11:10 Motor systems
5/7 Wed
  10:10 Neural control of human locomotion; Leonard 146-175
5/9 Fri
  10:10 Review and reading day

Final examination: Finals Week