DPT 760 NEUROSCIENCES
Units: 4, Clock Hours: Lecture 60
Spring 2013
TIME: 12:30-2:30
LOCATION:

Instructor: Annie Burke-Doe, PT, MPT, PhD
Office: Adjunct Faculty Office
Office Hours: Tu & Th following class

Course Prerequisites
DPT 625, DPT 650

Course Materials
Required Text and Readings:

Additional or Recommended Text and Readings:
Additional reading assignments will be announced.

About your instructor
Dr. Burke-Doe received her B.A. in sports medicine from University of the Pacific in Stockton, California, her MPT in physical therapy from University of California at San Francisco and her Ph.D. in pharmaceutical sciences at University of the Pacific. She is currently an Associate Professor at the University of St. Augustine in San Diego teaching physiology, pathology, pharmacology, and differential diagnosis in the DPT, tDPT, MOT and OPA programs.

Purpose/Course Overview
This course focuses on the anatomy and physiology of the central nervous system, with a specific emphasis on the substrates and processes involved in movement. The course will provide the student physical therapist with a framework for developing a) knowledge of the normal structure and function of the human central nervous system; b) an understanding of various pathological conditions and their clinical manifestations; c) the skills necessary to perform/interpret a clinical neurological assessment. This course is foundational for the development of clinical problem solving skills for the physical therapist.

Teaching Methods and Learning Experiences
The primary teaching methods include lectures, assigned readings, discussions, examinations, and Blackboard assignments. Although this course does not have a formal laboratory component, approximately 4 lab sessions and case presentations will be used to supplement course material.

Student Learning Outcomes
At the completion of this course, the student physical therapist will be able to:
1. Define the basic macroscopic organization of the central nervous system.
2. Define the basic cellular and neurochemical organization of the central nervous system.
3. Describe the physiological processes of signal conduction within and between various neurological systems.
4. Identify/locate various neuroanatomical structures within the central nervous system.
5. Sketch the blood supply to the brain and spinal cord.
6. Assess and explain the functions of various neuroanatomical structures (e.g. cerebellum) and systems (e.g. sensory system) within the central nervous system.
7. Demonstrate and interpret a neurological examination that includes gross assessment of mental status, reflexes, and cranial nerves, the motor and sensory systems, and coordination and gait.
8. Demonstrate an understanding of common central nervous system pathologies/injuries by:
   a) describing the probable clinical presentations of various nervous system pathologies;
   b) hypothesizing the location or nature of the pathology based on a patient’s signs, symptoms, or examination results.
9. Discuss the plasticity of the central nervous system as it relates to development, injury, and rehabilitation.
Course Outline

TENTATIVE SCHEDULE

<table>
<thead>
<tr>
<th>Day/Date</th>
<th>Topic</th>
<th>Readings</th>
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<tbody>
<tr>
<td>Th 1/17</td>
<td>Introduction to Course; Introduction to Clinical Case Presentations</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>Tu 11/22</td>
<td>Neuroanatomy Overview, Basic Organization and Definitions</td>
<td>Chapter 2</td>
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<tr>
<td>Th 1/24</td>
<td>Online Activity no class (CSM)</td>
<td>Chapter 2</td>
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<tr>
<td>Th 1/29</td>
<td>The Neurologic Exam</td>
<td>Chapter 3</td>
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<tr>
<td>Th 1/31</td>
<td>Lab 1</td>
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<tr>
<td>Tu 2/5</td>
<td>The Neurologic Exam</td>
<td>Chapter 3</td>
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<td>Th 2/7</td>
<td>Lab 2</td>
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<tr>
<td>Tu 2/12</td>
<td>Introduction to Clinical Radiology (Review for written exam 1)</td>
<td>Chapter 4</td>
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<tr>
<td>Th 2/14</td>
<td>Exam I</td>
<td>Chapters 1-4</td>
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<tr>
<td>Th 2/19</td>
<td>Brain and Environs: Cranium, Ventricles, Meninges</td>
<td>Chapter 5</td>
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<tr>
<td>Th 2/21</td>
<td>Lab 3</td>
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<tr>
<td>Th 2/26</td>
<td>Brain and Environs: Cranium, Ventricles, Meninges</td>
<td>Chapter 5</td>
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<tr>
<td>Th 2/28</td>
<td>Lab 4 Practical Exam (Review?) Grand Rounds Presentations Topic Due</td>
<td>Labs 1-4</td>
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<tr>
<td>Tu 3/5</td>
<td>Somatosensory Pathways</td>
<td>Chapter 7</td>
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<td>Th 3/7</td>
<td>Motor Pathways</td>
<td>Chapter 6</td>
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<tr>
<td>Tu 3/12</td>
<td>Autonomic Nervous System</td>
<td>Handout</td>
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<td>Th 3/14</td>
<td>Cerebral Hemisphere and Vascular supply</td>
<td>Chapter 10</td>
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<tr>
<td>Tu 3/19</td>
<td>Exam II</td>
<td>Chapters 5-7, 10 and ANS Lecture</td>
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<tr>
<td>Th 3/21</td>
<td>Visual System</td>
<td>Chapter 11</td>
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<tr>
<td>Tu 3/26</td>
<td>Brainstem 1: Surface Anatomy of the Brainstem</td>
<td>Chapter 12</td>
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<tr>
<td>Th 3/28</td>
<td>Brainstem 1: Surface Anatomy of the Brainstem</td>
<td>Chapter 12</td>
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<tr>
<td>Tu 4/2</td>
<td>Spring Break</td>
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<tr>
<td>Th 4/4</td>
<td>Spring Break</td>
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<tr>
<td>Tu 4/9</td>
<td>Brainstem 2 :Eye Movements and Pupillary Control</td>
<td>Chapter 13</td>
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<tr>
<td>Th 4/11</td>
<td>Brainstem 3 : Internal Structures and Vascular Supply</td>
<td>Chapter 14</td>
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<tr>
<td>Tu 4/16</td>
<td>Exam III</td>
<td>Chapters 11-14</td>
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<tr>
<td>Th 4/18</td>
<td>Cerebellum</td>
<td>Chapter 15</td>
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<td>Tu 4/23</td>
<td>Basal Ganglia</td>
<td>Chapter 16</td>
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<tr>
<td>Th 4/25</td>
<td>Limbic Homeostasis, Olfaction, Memory and Emotion</td>
<td>Chapter 18</td>
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<td>Tu 4/30</td>
<td>Higher Order Cerebral Function</td>
<td>Chapter 19</td>
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<tr>
<td>Th 5/2</td>
<td>Clinical Case Presentations</td>
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<tr>
<td>Th 5/7</td>
<td>Clinical Case Presentations</td>
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<td>Finals Week</td>
<td><strong>Final</strong></td>
<td><strong>Exam date and time TBA</strong></td>
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Grading Criteria

Total course points will be based on the following measures:

1. Exams: Four examinations (100 points each) during the semester including a final examination will be administered. Exam material will be derived from classroom lectures, labs and discussion, required readings and handouts. Exams will consist of multiple choice, fill in the blank and short answer type questions.

2. Grand Rounds: Ground rounds are an opportunity for you to learn and teach your peers about a neurologic pathology that you select as a group. You may have up to 3 members in your group which is ideal for the time allotted. You will choose a peer group leader who will submit your topic request and whose last name will be used to assign your time of presentation by February 28th, 2013 (Forms will be provided by the instructor 1 week prior to due date). Those who have not found a group will be assigned one by the instructor. It will be your responsibility as a team of researchers to determine the
frequency of meetings and division of work. Once your topic has been approved you will prepare and present a 20 minute presentation for the class with all members participating. You will follow the outline below and your presentation should be followed by 10 to 15 multiple choice questions. You may include supplemental information such as pictures, links or a brief clinical scenario. Your topic should be submitted in power point format in blackboard prior to your presentation. You can earn up to 40 points for this assignment. Note: Students must review each presentation. You will use a review form (attached). Reviews make up 10 points of the 40 for your Grand rounds topic. Your Grand Round should include the following:

a. Historical perspective of the disease (discovery, developments, etc)
b. Definitions of key terms
c. Clinical manifestations of the disease
d. Etiology of the disease
e. Pathogenesis and pathophysiology of the disease
f. Epidemiology of the disease
g. Prevention techniques
h. Diagnostic tests associated
i. Prognosis and complications of the disease
j. Implication for Rehabilitation Team members/Management

3. Class room participation and professionalism: Up to 10% of course grade may be deducted by the instructor for unexcused absences, lack of preparation for class, or unprofessional behaviors. See expectations and course policies.

Grades will be determined based on the following percentages of total class points:

100-90% = A  
89-80% = B  
79-70% = C  
< 70% = F

(+ and - grades will be assigned to the upper and lower 2% of each range, for example, 80 and 81% = B- while 88 and 89% = B+)

Grade Posting
The instructor will endeavor to have each examination graded and the grades posted within 48 hours of the examination baring all unforeseen circumstances.

Exam Review
A review of the examination will be conducted on the first class day following the examination at the end of the class. The review will take the following format:

• The instructor will identify questions that more than 50% of the class missed and discuss those in class using a power-point slide or transparencies of the questions.
• At the end of the review if any student wishes to review other questions specific to them, they will need to come to my office to look at their examination booklet. In this way the student gets individualized attention.
• After each review, both the question paper and the score sheet must be handed back to the instructor. Examination questions are extremely confidential and no part of the examination questions is to be reproduced by the student under any circumstances.
• Review of the final exam may take place within the first two weeks of the following semester.
• Under no circumstances should any part of the content of the examination be copied or reproduced in any form. Any examination materials in the hands of students must be those given by the instructor. Any violations will be treated as academic dishonesty and could result in dismissal from the University.
• The instructor is interested in your feedback. What is working, what is not working and how to improve the course. If you have a difficult topic to discuss you are encouraged to come to office hours.

Student Performance
• Students who perform below a 70% in any examination are encouraged to see the instructor as soon as possible to discuss strategies for improving their grade.

Professional Behavior Statement
Entrance into the program of study in physical therapy at San Diego State University signifies a commitment to a doctoring profession, which entails a consistent demonstration of specific knowledge, skills and attitudes. Professional behaviors are a defining element of a doctoring profession. Thus, integration of professional behaviors is a key aspect of the professional
socialization process, which begins in the educational program. The following professional behaviors (adopted from objectives 1-6 of the APTA Clinical Performance Instrument) are expected of all doctoral physical therapy learners:

- Practice in a safe manner that minimizes risk to the patient, self, and others;
- Demonstrate professional behavior in all situations;
- Practice in a manner consistent with established legal and ethical practice standards;
- Communicate in ways that are congruent with situational needs;
- Adapt delivery of physical therapy services with consideration for patient’s differences, values, preferences, and needs;
- Participates in self-assessment to improve clinical and professional performance.

**Technology:** Laptops and notepads are permitted in class when used to view Neuroscience course materials ONLY. If there is a violation of this professional behavior, a 5% reduction in your final grade will occur.

**Attendance/Tardiness:** Students are expected to be on time and prepared for class. Class attendance is mandatory. Excused/Unexcused absences: Any absences needed for sickness or special circumstances should be REQUESTED of the instructor. Requests should be made one week in advance, if missing for special circumstances. Missing class should only occur in very rare instances or illness.

**Statement on Cheating and Plagiarism**
Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one’s grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term ‘cheating’ not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one’s own work. Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the University. For more information on the University’s policy regarding cheating and plagiarism, refer to the General Catalogue or the Graduate Bulletin section 41304.

**Students with Disabilities**
The University is committed to providing reasonable academic accommodation to students with disabilities. The Student Disability Services Office provides university academic support services and specialized assistance to students with disabilities. Individuals with physical, perceptual, or learning disabilities as addressed by the Americans with Disabilities Act should contact Student Disability Services office for information regarding accommodations at (619) 594-6473 (http://www.sa.sdsu.edu/dss/dss_home.html). Moreover, you should notify me so that reasonable efforts can be made to accommodate you.

*This syllabus and schedule are subject to change in the event of extenuating circumstances.*