College of Health and Human Services
Department of Physical Therapy

Neurological Evaluation & Treatment II (PT244)

Fall Semester 2009

COURSE CREDIT: 4 units: 2 hours lecture, 6 hours of lab per week

CLASSROOM: SLN 3018

TIME: Lecture: W, F 8:00 – 9:00AM
       Lab: W, F 9:00-11:30 (Patient care 9:00-12:00)

INSTRUCTOR: D. Michael McKeough, PT, EdD
             OFFICE: Solano Hall 4030
             OFFICE HOURS: M 7:30– 8:30, W, F 11:30 – 12:30
                           Others by appointment
             TELEPHONE: 278 5055
             E-MAIL: mmckeough@csus.edu

INSTRUCTOR: Laura Jackson, PT
             OFFICE: Solano Hall 4011
             OFFICE HOURS: By appointment
             TELEPHONE: TBA
             E-MAIL: TBA

COURSE DESCRIPTION:
This course is the second part of a three course series focusing on the acquisition and integration of knowledge and skills involved in developing and implementing a treatment plan for the patient with neurological dysfunction based on sound evaluative findings. Case presentation, video demonstrations and actual patient contact will be used to develop evaluation, treatment and problem-solving skills. Open to Physical Therapy majors only.

This course will focus on patients with multiple sclerosis, vestibular dysfunction, train tumors, cerebellar dysfunction, and spinal cord injury

PREREQUISITES:
BIO 233 Applied Musculoskeletal Anatomy for PTs
PT 200 Pathokinesiology
PT 202 Research Methods in Physical Therapy I
PT 204 Principles of Human Movement
PT 206 Therapeutic Measurements & Techniques
PT 208 PT/Patient/Professional Interactions
PT 220 Therapeutic Exercise I
PT 222 Research Methods in Physical Therapy II
PT 224 Neurological Evaluation & Treatment I
PT 225 Musculoskeletal Evaluation & Treatment I
PT 226 Clinical Agents
PT 227 Physical Therapy Educator

CO-REQUISITES:
PT 240 Therapeutic Exercise II
PT 245 Musculoskeletal Evaluation and Treatment II
PT 266 Special Topics In Physical Therapy
PT 248 Health Care Delivery in Physical Therapy I

REQUIRED TEXTS/ REFERENCES:
1. Int'l Standards for Neurological Classification of SCI, ASIA, 2002. You must order this direct from ASIA, and order form is on website: www.asia-spinalinjury.org/publications/form.html Chose the pamphlet and then add shipping and handling to come to $11, and mail check to ASIA
5. Class Notes and articles as provided on the Homepage

COURSE OBJECTIVES: (Referenced to Program Educational Goals and Related Objectives)
At the conclusion of this course, the student is expected to:

Goal 1.0: Demonstrate Professional Competence

1.1 Compare and contrast normal biological, physiological, and psychological mechanisms of the human body with pathophysiological factors that lead to impairments.
   1.1.1 Discuss the etiology and clinical features of major disorders.
   1.1.1.1 Using a disability model describe the relationship between pathological processes, impairments, functional limitations and disability.
   1.1.2 Describe how pathological processes affect normal function.
   1.1.2.1 Compare and contrast the characteristics (voluntary strength, atrophy, response to muscle stretch, tone, abnormal movements) for lesions affecting the brainstem, the cerebellum, the basal ganglia, the cerebral cortex, cranial nerves and the spinal cord.
   1.1.2.2 Describe the theories of aging and the effect of aging on the nervous system.
   1.1.2.3 Describe the gross neuroanatomic structure and functioning of and the clinical implications for a patient client with disorders of the autonomic nervous system.
   1.1.2.4 Describe the neuroanatomic structure and functioning of the basal ganglia and cerebellum and the clinical implications of lesions or disorders affecting these CNS structures.
   1.1.2.5 Describe the neuroanatomic structure and functioning of the spinal region and
the clinical implications of lesions or disorders affecting the spinal region, including differentiation of UMN and LMN findings, and peripheral and spinal nerves symptoms.

1.1.2.6 Describe the neuroanatomic structure and functioning of the cerebrum and the clinical implications of lesions or disorders affecting the cerebrum.

1.1.2.7 Describe the neuroanatomic structure and functioning of the cerebral spinal fluid system and the clinical implications of lesions or disorders affecting the CSF.

1.1.2.8 Describe the neuroanatomic structure and functioning of the brainstem and the clinical implications of lesions or disorders affecting this CNS structure.

1.1.3 Discuss common medical/surgical treatments for major disorders.

1.1.3.1 Discuss common medical/surgical treatments for a patient client with disorders of the brainstem, cerebellum, basal ganglia, cerebral cortex or spinal cord.

1.2 Determine the physical therapy needs of an individual seeking services.

1.2.1 Perform an effective and efficient physical therapy screen.

1.2.2 Evaluate and interpret the results of examinations to arrive at a physical therapy diagnosis.

1.2.2.1 Apply knowledge of the anatomy and pathophysiology of disorders of the autonomic nervous system, brainstem, cerebellum, basal ganglia, spinal region or cerebral cortex to the physical therapy evaluation.

1.2.2.2 Apply understanding of the theories of aging and the effect of aging on the elements of the nervous system to determining the needs of an individual seeking services.

1.2.2.3 Select and interpret the results from common measurement tools used in assessing patients/clients with disorders of the peripheral nerve, and injuries/disorders of the central nervous system.

1.3 Develop a plan of care that considers a person’s individual needs and goals, the pathophysiology involved, the biological mechanisms of human function, the environment where care is being rendered, accurate interpretation of the results of the examinations, careful analysis of all gathered data, and resource constraints.

1.3.1 Prioritize patient/client problems taking into consideration the patient/client’s needs and goals, pathophysiology, and biological mechanisms within the constraints of the environment and resources.

1.3.1.1 Apply knowledge of the neuroanatomy and pathophysiology of disorders of the autonomic nervous system, brainstem, cerebellum, basal ganglia, cerebral cortex or spinal region to the physical therapy plan of care.

1.3.1.2 Integrate knowledge of common surgical procedures performed on clients with disorders of the autonomic nervous system, the brainstem, cerebellum, basal ganglia, spinal region or cerebral cortex into the physical therapy care plan.

1.3.1.3 Develop a problem list based on your evaluation of the patient/client with disorders of the autonomic nervous system, the brainstem, cerebellum, basal ganglia, cerebral cortex or spinal region.

1.3.1.4 Prioritize the problems list in preparation for the development of goals and the plan of care.

1.3.1.5 Based on the evaluation and in conjunction with the patient/client, design a cost-effective plan of care for a patient/client with a disorder of the autonomic nervous system, the brainstem, cerebellum, basal ganglia, cerebral cortex or spinal region.

1.3.2 Based on research data determine the patient/client’s prognosis or the expected level of optimal improvement with implementation of the care plan.
1.3.4 Determine the amount of time required to achieve optimal function with the implementation of the care plan.

1.3.4.1 Construct short and long term goals that address the problems identified in the evaluation. Taking into consideration the patient's/client's needs and goals, pathophysiology and biological mechanisms within the constraints of the environment and resources.

1.4 Implement the physical therapy plan of care designed to restore and/or maintain optimal function, applying selected therapeutic interventions that demonstrate safe, effective, and efficient psychomotor skills in the performance of physical therapy procedures and techniques.

1.4.1 Apply the most efficient and effective therapeutic interventions utilizing appropriate physical therapy procedures and techniques to produce changes in the patient/client's condition consistent with the diagnosis and prognosis.

1.4.1.1 Apply knowledge of the pathophysiology of disorders of the autonomic nervous system, the brainstem, cerebellum, basal ganglia, cerebral cortex and spinal region to the therapeutic intervention.

1.4.1.2 Demonstrate a therapeutic exercise program for a patient/client with a disorder of the autonomic nervous system, brainstem, cerebellum, basal ganglia, spinal cord or cerebral cortex.

1.4.1.3 Interpret how common medications will affect a patient's participation in and response to physical therapy activities.

1.4.1.4 Select and adjust the appropriate equipment to enhance the patient/client's mobility and function in relation to the treatment goals, including but not limited to: orthotics, wheelchairs, wheelchair accessories and other durable medical equipment.

1.4.2 Modify or redirect selected therapeutic interventions in light of reexaminations and/or patient/client's response to interventions.

1.4.2.1 Modify the environment (with the permission of the patient/client) to facilitate effective therapeutic intervention and optimal function.

1.4.2.2 Modify the physical therapy program in light of the psychosocial and socioeconomic aspects associated with a patient/client with a disorder of the brainstem, cerebellum, basal ganglia, cerebral cortex or spinal cord.

1.4.3 Instruct the patient/client or caregiver in exercises, postures, handling techniques, home exercises consistent with patient/client diagnosis, prognosis, and expected outcomes, to facilitate patient/client progress, to maintain patient/client status, or to slow deterioration.

1.4.3.1 Instruct a patient/client with a disorder of the autonomic nervous system, brainstem, cerebellum, basal ganglia, cerebral cortex or spinal cord in the use of medical equipment.

1.4.3.2 Teach a patient/client with a disorder of the autonomic nervous system, brainstem, cerebellum, basal ganglia, cerebral cortex or spinal cord to perform functional activities.

1.4.3.3 Teach the family and/or caregivers of a patient/client with a disorder of the autonomic nervous system, brainstem, cerebellum, basal ganglia, or cerebral cortex to assist the patient/client with a home program.

1.4.3.4 Instruct the patient's/client's family and/or caregivers in the physical management (transfers, dressing, bathing, etc.) of the patient/client.

1.5 Instruct the patient's/client's family and/or caregivers in the physical management (transfers, dressing, bathing, etc.) of the patient/client.
1.5.1 Determine the appropriate documentation for the recording of patient/client information consistent with the fiscal intermediary, and the treatment setting.

1.5.2 Document the results of examination, plan of care, and intervention program for a patient/client with a disorder of the autonomic nervous system, brainstem, cerebellum, basal ganglia, cerebral cortex or spinal cord.

1.5.3 Communicate efficiently and effectively with other health care providers involved in the patient/client’s care.

1.5.3.1 Communicate effectively with the patient/client and caregivers.

1.5.3.2 Communicate with other members of the rehabilitation team, including but not limited to the MD, RN, OT, SLP, PTA, PT aide, psychologist, neuropsychologist.

1.5.3.3 Demonstrate accurate, effective written communication of evaluation findings, observations and interactions with other health care providers.

1.6 Determine the appropriate discharge and follow-up plan for patients/clients.

1.7 Provide rationales for decisions made in the management of a patient/client with a disorder of the autonomic nervous system, brainstem, cerebellum, basal ganglia, spinal region or cerebral cortex.

1.9 Engage in education activities consistent with imparting information and knowledge to individuals or groups.

1.9.1 Develop home exercise programs as a component of the treatment plans developed for patients seen in clinic.

**Goal 2.0: Demonstrate Professional Behaviors**

2.1 Recognize cultural, ethnic, age, economic, and psychosocial differences and apply a humanistic and holistic approach to the delivery of a clinical service.

2.1.1 Demonstrate appropriate behaviors in class, laboratory, and clinical sessions as defined by the generic abilities.

2.2 Communicate effectively for varied audiences and purposes.

2.4 Recognize the need for personal and professional growth through self assessment, self correction, and self direction, and exhibit a commitment to life long learning.

2.4.1 Welcome and seek new learning opportunities.

2.4.2 Assume responsibility for own learning.

2.4.3 Accept responsibility and demonstrate accountability for professional decisions.

2.4.4 Recognize own biases and suspend judgments based on biases.

2.4.5 Demonstrate honesty, compassion, and courage in all interactions.

2.5 Demonstrate professional responsibility in all interactions.

2.5.1 Demonstrate dependability.

2.5.2 Demonstrate punctuality.

2.5.3 Follow through on commitments.

2.5.4 Recognize own limits.

2.5.5 Accept constructive criticism without defensiveness.

2.5.6 Demonstrate initiative.

2.5.7 Project a professional image appropriate to the setting.

**Goal 3.0 Practice in an Ethical and Legal Manner**

3.1 Demonstrate ethical and legal practice while engaged in patient management activities in the clinical components of the course.
Goal 4.0: Demonstrate Scholarship

4.1 Apply basic principles of statistics and research methodologies within the practice of physical therapy.

   4.1.1 Apply knowledge from scientific literature to the evaluation and treatment of the patients/clients with disorders of the peripheral nerve, or various levels of the central nervous system.

   4.1.4 Critique and utilize the scientific literature in determining interventions and in discussion of evidenced-based practice.

Academic Honesty

The university policy regarding academic honesty is in effect in this course and any alleged violations will be handled in accordance with the policies described in the University Catalogue 2006-2008 pp98-99. ([http://www.library.csus.edu/content2.asp?pageID=175](http://www.library.csus.edu/content2.asp?pageID=175)).

Students with Special Needs

If you have a disability and require accommodations, you need to provide disability documentation to SSWD, Lassen Hall 1008, (916) 278-6955. Please discuss your accommodations needs with me after class or during my office hours early in the semester. Please refer to the following university policy for further details ([www.csus.edu/mppa/gradmanual/index.htm](http://www.csus.edu/mppa/gradmanual/index.htm)).

TEACHING STRATEGIES AND LEARNING ACTIVITIES:

Lecture, demonstration, reading assignments, AV materials, large and small group discussion, laboratory practice (including individuals with neurologic deficits), and movement observation.

ASSESSMENT

<table>
<thead>
<tr>
<th>Assessment type</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>45</td>
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<tr>
<td>Exam 2</td>
<td>45</td>
</tr>
<tr>
<td>Final examination</td>
<td>40</td>
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<tr>
<td>Assignment 1: Vestibular Anatomy</td>
<td>10</td>
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<tr>
<td>Assignment 2: Wheelchair reflections</td>
<td>10</td>
</tr>
<tr>
<td>Assignment 3: Patient care</td>
<td>40</td>
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<tr>
<td>Class participation Review of literature</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
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Exams:

There are 3 scheduled exams for this course. For excused absences ONLY, make-up exams are available through the University Testing Center with a 10 point penalty due to the additional study time.
ASSIGNMENTS: Without prior approval, late assignments are not accepted and a score of 0 is entered for the assignment.

Assignment 1 Vestibular anatomy is due in hard copy at the beginning of class on the assigned date (See Assignment 1 Vestibular Anatomy)

Assignment 2 A written report of reflections about the lessons learned from the wheelchair experience is due no later than 2 weeks after completing the assignment (See Assignment 2 Wheelchair Experience)

Assignment 3 In groups of 2-3, students will provide 8 weeks of patient care in Mock Clinic. Half the grade for the assignment will come from a practical exam and half from an individual written report (See Assignment 3 Patient Care Assignment)

GRADING SCALE:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>93 – 100%</td>
<td>186-200</td>
</tr>
<tr>
<td>A-</td>
<td>90 – 92%</td>
<td>180-185</td>
</tr>
<tr>
<td>B+</td>
<td>87 - 89%</td>
<td>174-179</td>
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<tr>
<td>B</td>
<td>83 – 86%</td>
<td>166-173</td>
</tr>
<tr>
<td>B-</td>
<td>80 – 82%</td>
<td>160-165</td>
</tr>
<tr>
<td>C+</td>
<td>77 – 79%</td>
<td>154-159</td>
</tr>
<tr>
<td>C</td>
<td>73 – 76%</td>
<td>146-153</td>
</tr>
<tr>
<td>C-</td>
<td>70 – 72%</td>
<td>140-145</td>
</tr>
<tr>
<td>D</td>
<td>60 - 69%</td>
<td>120-139</td>
</tr>
<tr>
<td>F</td>
<td>59% &amp; below</td>
<td>≤ 119</td>
</tr>
</tbody>
</table>

Students are expected to maintain a full attendance. Absences related to illness should be reported to the instructor on the morning of the day of the absence. Failure to report absences are viewed as non-professional conduct and will result in loss of participation points.

PROFESSIONAL CONDUCT (Generic Abilities):

Students enrolled in the physical therapy program are expected to conduct themselves in a professionally acceptable manner that includes refraining from academic or professional dishonesty. This includes cheating and plagiarism in academic assignments. Such offenses will result in prompt disciplinary action.

Students are responsible for appropriate behaviors as defined by the generic abilities. Failure to comply with behavioral expectations during class or lab may result in a student first being warned that the behavior is inappropriate, then, if inappropriate behavior continues, a student may be asked to leave a class or lab. Repeated failure to comply with behavioral expectations can lead to failure in the course.

Please note that this syllabus may be changed at any time at the discretion of the Instructor with prior notification of student