



SACRAMENTO STATE

College of Health and Human Services Department of Physical Therapy

PT 224 - Neurological Evaluation & Treatment I

Spring Semester

2009

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

INSTRUCTORS: Michael McKeough, PT, EdD
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LOCATION: Solano 3018

TIME: Lecture: Wed/ Fri 8:00-9:00
Lab: Wed/ Fri 9-11:30 except Mock Clinic

Session A	9:00-10:00
Session B	10:00-11:00
Session C	11:00-12:00

COURSE DESCRIPTION:

This course is the second in a three course series focusing on the acquisition and integration of knowledge and skills involved in treating the patient with movement dysfunction caused by neurological damage (Referred to in the Guide as Neuromuscular Practice Patterns). Focus is on development and implementation of a treatment plan based on sound evaluative findings and evidence of treatment efficacy. 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.**

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

CO-REQUISITES:

PT 220	Therapeutic Exercise I
PT 222	Research Methods in Physical Therapy II
PT 225	Musculoskeletal Evaluation & Treatment I
PT 226	Clinical Agents
PT 227	Physical Therapy Educator

REQUIRED TEXTS

1. ***Physical Rehabilitation***, O'Sullivan and Schmitz, FA Davis, Fifth Edition, 2007
2. ***Neurotherapeutic Toolbox***, CSUS Department of Physical Therapy, PT224 Class Notes, 2009
3. ***Neuroscience: Fundamentals for Rehabilitation***, Lundy-Ekman, Third Ed, Saunders, 2007

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. Describe how pathological processes affect normal behavior.
 - 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, sensation and electrical findings) for lesions affecting the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the central nervous system and the myoneural junction.
 - 1.1.2.2. Describe the neuroanatomical structure and functioning of and the clinical implications of lesions or disorders affecting the somatosensory system.
 - 1.1.2.3. Describe the neuroanatomical structure and functioning of and the clinical implications of lesions or disorders affecting the motor system
 - 1.1.2.4. Describe the neuroanatomical structure and functioning of and the clinical implications of lesions or disorders affecting the peripheral nervous system
 - 1.1.2.5. Describe the neuroanatomical structure and functioning of and the clinical implications of lesions or disorders affecting the cranial nerves
 - 1.1.2.6. Describe the neuroanatomical structure and functioning of and the clinical implications of lesions or disorders affecting the cerebrum.
 - 1.1.2.7. Describe the neuroanatomical structure and functioning of and the clinical implications of lesions or disorders affecting the blood supply of the central nervous system.
 - 1.1.2.8. Describe the neuroanatomical structure and functioning of and the clinical implications of lesions or disorders affecting the myoneural junction.
 - 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 somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply of the CNS and the myoneural junction.
- 1.2. Determine the physical therapy needs of an individual seeking service
 - 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 neuroanatomy and pathophysiology of disorders of the somatosensory system, motor system, peripheral

- nervous system, cranial nerves, cerebrum, blood supply of the CNS and the myoneural junction to the physical therapy evaluation.
 - 1.2.2.2. Select and interpret the results from common measurement tools used in assessing patients/clients with disorders of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction to the physical therapy evaluation.
 - 1.2.2.3. Perform an evaluation of a patient/client with a disorder of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction.
 - 1.2.2.4. Determine the need for additional information and utilize technological search mechanisms to find that information.
- 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 pathophysiology of disorders of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction to the physical therapy plan of care.
 - 1.3.1.2. Integrate knowledge of common surgical procedures performed on clients with disorders of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction 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 somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction.
 - 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 somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction.
 - 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.
 - 1.3.3. Select the appropriate physical therapy interventions that consider the patient's/client's needs and goals.
 - 1.3.3.1. Evaluate the patient/client for an orthosis
 - 1.3.3.2. Evaluate the fit and function of an orthosis.
 - 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.

- 1.3.5. Seek and find information using contemporary technology that addresses the specific needs of the patient care plan.
- 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 somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction to the therapeutic intervention.
 - 1.4.1.2. Demonstrate a therapeutic exercise program for a patient/client with a disorder of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction.
 - 1.4.1.3. Select and adjust the appropriate equipment to enhance the patient's/client's mobility and function in relation to the treatment goals, including, but not limited to orthotics, wheelchairs and 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 psychosocial and socioeconomic aspects associated with a patient/client with a disorder of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction.
 - 1.4.2.3. Instruct a patient/client with a disorder of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction in the use of medical equipment.
 - 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. Teach a patient/client with a disorder of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction to perform functional activities.
 - 1.4.3.2. Teach the family or caregivers of a patient/client with a disorder of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction in assisting the patient/client with a home program.
 - 1.4.3.3. Modify the environment (with the permission of the patient/client) to facilitate effective therapeutic intervention and optimal function.
 - 1.4.3.4. Instruct the patient's/client's family or caregivers in the physical management (transfers, dressing, bathing, etc.) of the patient/client.
 - 1.4.3.5. Instruct a patient with a disorder of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum,

blood supply to the CNS and the myoneural junction in the use of medical equipment.

- 1.5. Demonstrate effective verbal and written communication skills with patients/clients, families, other health care professionals, and the public, to facilitate therapeutic interventions and interdisciplinary interactions and cooperation.
 - 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 somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction.
 - 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 (2.2.1, 2.2.2, 2.2.3. & 2.2.4.)
 - 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.
- 1.6. 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 somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction.
 - 1.7.1 Access and evaluate information via contemporary technology to determine value and application to the specific presenting problem.
- 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 Practice physical therapy in a safe, legal, ethical and professional manner.
 - 3.1.1. Practice physical therapy during laboratory clinical sessions safely, ethically, and legally, seeking assistance from the supervising faculty as needed.
- 3.2 Abide by the APTA code of ethics
- 3.3 Adhere to all applicable state and federal laws.
 - 3.3.1 Demonstrate the ability to search and find information about laws and regulations effecting physical therapy practice from state and federal electronic sources.

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 patients/clients with disorders of the somatosensory system, motor system, peripheral nervous system, cranial nerves, cerebrum, blood supply to the CNS and the myoneural junction.
 - 4.1.2. Read, critique and interpret the scientific literature.

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>).

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).

TEACHING STRATEGIES AND LEARNING ACTIVITIES:

Case-method teaching, lecture, demonstration, reading assignments, AV materials, guest lecturers, large and small group discussions, written projects and presentations, laboratory practice, field trips, and patient care labs.

OUTCOME OBJECTIVE

Students will leave the course with the ability to manage the physical therapy needs of a patient with stroke, brain injury, or progressive neurologic disorder. Patient management entails initial examination and evaluation, developing and skillfully delivering a plan of care including assistive equipment and referral to additional healthcare professionals.

ASSESSMENT & ASSIGNMENTS

Assessment Type	Points
Exam 1	40
Exam 2	40
Final examination	40
Patient Care	40
Assignment 1: Cerebral Circulation	5
Assignment 2: Somatic Sensory System	5
Assignment 3: Augmented Feedback	5
Assignment 4: Review of literature	25
Total	200

The final exam in this course will not occur as posted on the university schedule but is set by the department during final exam week to avoid multiple exams in one day. You will be notified when the final exam schedule is set.

There are 3 lecture exams during the semester. **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.**

If you disagree with the scoring of a question, submit a written request for reconsideration with the appropriate reference to justify your answer within 2 working days of receiving your test.

ASSIGNMENTS: (For details see Assignments on the Homepage)

1. Cerebral Circulation: Label the illustrations and complete the tables.
2. Somatic Sensory System: Label the illustrations and complete the tables.
3. Augmented Feedback: Develop augmented feedback for 2 intervention activities
4. Review of literature: Group report on current topics from the literature

There are 4 assignments for the course. Assignments 1-3 are due in **HARDCOPY** at the beginning of class on the assigned date. **Without prior approval, late assignments are not accepted and a score of 0 is entered for the assignment.** Assignment 4, Review of literature is due as scheduled (see class schedule).

GRADING SCALE:

Grade	Percent	Points
A+	97-100%	194-200
A	93 – 96%	186-193
A-	90 – 92%	180-185
B+	87 - 89%	174-179
B	83 – 86%	166-173
B-	80 – 82%	160-165
C+	76 – 79%	154-159
C	73 – 76%	146-153
C-	70 – 72%	140-145
D	60 - 69%	120-139
F	59% & below	≤ 119

PROFESSIONAL CONDUCT:

Generic Abilities are enforce in this course.

Regarding attendance, professional behavior is operationally defined as full, punctual attendance. Absences related to illness should be reported to the instructor on the morning of the day of the absence.

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.

Special accommodations: During the course of the year, some students may utilize prearranged accommodations. If you are a student with a learning disability, physical disability, or other special needs, please let me know as soon as possible if you need special accommodation. These kinds of confidential discussions are best handled during my office hours or by special appointment. You can expect confidentiality and cooperation regarding any circumstances and needs that have been verified through the disabilities center on campus.

Please note that this syllabus may be changed at any time at the discretion of the instructor with prior notification of the students.