

**University of Texas at El Paso
College of Health Sciences
Doctor of Physical Therapy Program**

PT 6414

Neuromuscular Rehabilitation II

Spring 2015

COURSE SYLLABUS

Credit Hours: 4

Contact Hours: 135 hours (9 weeks + final)

Schedule: Mondays 3:00-4:30 and 5:30 – 8:30; Tuesdays 1:00 – 4:00; Wednesdays 3:00 – 4:30; Thursdays 5:30 – 8:30. Room 115 and Room 113. See Tentative Topic/Assignment Outline

Course coordinators/instructors:

Michelle Gutierrez, PT, DSc

Deborah Diaz, PT, PhD

Allison Carson, DPT

Adjunct Instructor:

Amii Villalobos, PT

Office Hours: Dr. Gutierrez: Tuesdays 4:00-5:30, Wednesdays 4:30-5:30, Thursdays 11:00-12:30 or by appointment

Office: 308

Phone: office: 915-747-8148; cell: 575-650-9121

E-mail: mgutierrez28@utep.edu

All other Faculty by appointment

Course Description:

Building on knowledge acquired in Neuromuscular Rehabilitation I, this course develops clinical approaches to the long-term management of pathology and trauma in neurologic patients. Using differential diagnosis, students develop the ability identify neurologic disorders in real and simulated patients, with the goal of implementing an effective plan of care. Emphasis will be on clinical application.

Course Objectives: Upon completion of this course, the student should be able to:

1. Describe the commonly associated pathophysiology, epidemiology, etiology, clinical course and sign/symptoms of various neurological disorders.
2. Develop an examination and intervention plan for patients with particular neurologic deficits. (CC-5.28-5.30, 5.39)
3. Describe common clinical diagnostic procedures used in the medical evaluation of neurologic

patients. (CC-5.2)

4. Perform a comprehensive neuromuscular, integumentary, cardiovascular, and musculoskeletal functional assessment on a complex neurologically impaired patient. (CC-5.30 a, c, d, e, f, g, I, j, k, l, m, n, o, p, q, s, t, u, v, w)

5. Identify complication factors such as fatigue, cognition, communication and behavioral issues that might complicate evaluation and intervention techniques, and remediation strategies to address these issues. (Cc-5.31, 5.38)

6. Recognize the impact that environment, psychosocial, or cultural orientation, age, and past history may have on the intervention plan and outcomes, and make adjustments accordingly. (CC-5.53-5.56)

7. Demonstrate basic competency in goal setting and plan of care development for neurological patients; and ability to document evaluations and treatment sessions for neurological patients. (CC-5.34-5.38, 5.42)

8. Identify situations where cross referral to other disciplines is appropriate. (CC-5.27)

9. Demonstrate entry-level critical thinking related to selection of assistive and adaptive devices for neurological patient presentations. (CC-5.30d)

10. Identify common precautions and medical complications seen in neurological patients, and demonstrate basic decision-making skills in deciding to continue treatment, follow-up with MD, or call emergency services.

11. Identify durable medical equipment that might benefit different neurological patients.

12. Demonstrate entry-level critical thinking related to selection of lower extremity orthoses for some common neurological patient presentations.

13. Demonstrate basic understanding of reimbursement issues for therapy and equipment under Medicare and other common payment sources.

14. Integrate current research and evidenced based practice within your examination and plan of care as appropriate

Required Texts:

Shumway-Cook A, Woollacott, MH. *Motor Control: Theory and Practical Applications*. 4th ed. Philadelphia, PA: Lippincott, Williams & Wilkins;2012.

O'Sullivan SB, Schmitz TJ. *Physical Rehabilitation*. 6th ed. Philadelphia, PA: FA Davis Co; 2014. (ISBN 978-0-8036-2579-2)

O'Sullivan SB, Schmitz TJ. *Improving Functional Outcomes in Physical Rehabilitation*. Philadelphia, PA: FA Davis CO; 2010. (ISBN 10: 978-0-8036-2218-0)

Recommended Texts:

Blumenfeld H, *Neuroanatomy through Clinical Cases*. 2nd ed. Sunderland, Mass: Sinauer Associates, Inc. Publishers; 2010.

Lundy-Ekman L. *Neuroscience: Fundamentals for Rehabilitation*. 4th ed. Philadelphia, PA: WB Saunders Co; 2013. (ISBN 978-1-4557-0643-3)

Martin S, Kessler M. *Neurologic Interventions for Physical Therapy*. 2nd ed. St. Louis, MO: Saunders Elsevier; 2007. (ISBN 978-0-7216-0427-5)

Umphred D. *Neurological Rehabilitation*, 6th ed. St. Louis, MO: Mosby; 2013. (ISBN 978-0-323-07586-2)

Herdman, SJ. *Vestibular Rehabilitation*. 4th ed. Philadelphia, PA: FA Davis Co; 2014 (ISBN 978-0-8036-3970-6)

Somers MF. *Spinal Cord Injury: Functional Rehabilitation*. 3rd ed. Upper Saddle River, NJ: Prentice Hall; 2010. (ISBN 13: 978-0-13-159866-9)

Methods of Instruction: Lecture, problem-solving sessions, DVD-based clinical scenarios, peer review, lab activities, and active learning experiences.

Methods of Evaluation: Evaluation of course content will consist of quizzes, exams, an assignment, a comprehensive practical examination, and a comprehensive final examination. Graded activities and their weight are as follows:

Quizzes	5%
Service Project	5%
Exam 1	20%
Exam 2	20%
Practical Final Exam	20%
<u>Written Final Exam</u>	<u>30%</u>
Total	100%

UTEP PHYSICAL THERAPY PROGRAM GRADING SCALE

The following letter grade scale is used for the UTEP Physical Therapy Program:

A 90-100

B 80-89

C 75-79

F Below 75

*If you get a grade below 80% on any examination or assignment, you are required to arrange a meeting with the instructor to develop study strategies for performance improvement.

Course Content: Please see topic outline for specific content.

Course Content: Rehab for patients with neurological conditions with emphasis on:

- pathological gait assessment and treatment, including orthotic management
- interventions to maximize function enlisting principals of motor control and learning,
- Balance and mobility assessment and treatment, vestibular rehabilitation,
- Seating, positioning and wheeled mobility,
- Spinal cord injury rehabilitation,
- Management of lower motor neuron injuries.

Course and Program Policy: See PT Program Handbook for all policies on exams, electronic device use, dress code, attendance, and scholastic dishonesty. Your instructors encourage you to periodically review all handbook policies, but in light of past experiences, particularly direct you to review the policies on cheating, accumulated knowledge, professional behaviors, attendance, and the disclaimer that the syllabus is subject to change.

Participation and Professional Behaviors:

1. All faculty expect students to arrive on time to class prepared, to actively participate, and to not be disruptive. Students are expected to return promptly from any breaks and remain attentive in the classroom until the next planned break.
2. Tardiness and Attendance Policy: Students are expected to be on time and prepared to begin the course; therefore, students who are tardy will be penalized. If you are late to class by greater than 10 minutes without contacting the instructor by email to the instructor or the PT Department office (915-747-8207) it will be treated as an unexcused absence. If an emergency or illness prevents a student from attending class, communication directly with an instructor or the department is expected prior to the beginning of class. A verbal message through another student will not suffice. It is the responsibility of the student to obtain any materials presented in class and to ensure assignments are turned in on time. Each unexcused absence will result in a 5% reduction of their total class grade. See the handbook for policy.
3. Professional behavior will be expected in ALL class sessions and inside and outside of the classroom. Students demonstrating unprofessional behavior will be warned one time and if the behavior continues the student will be excused from class for the day and the class session will be considered an unexcused absence. If a student is consistently ill-prepared, not actively participating, and/or being disruptive, the student will be contacted to meet with the instructor to discuss the problem. Each subsequent incidence of poor preparation, poor participation, and/or disruption may result in 1% deduction from the final semester grade.
4. Cell phones and telecommunication devices should be turned off or left outside of the classroom unless being used in class activities. If any circumstance necessitates the student to have his/her cell phone turned on in the classroom, it MUST be discussed with the instructor PRIOR to class. Any student who is observed to be using these devices during class time will be asked to leave the classroom for that class period, resulting in an unexcused absence for that class period. This includes using a laptop computer for accessing email or the internet for purposes not related to class topics during class time.

Special Accommodations (ADA):

“If you have or suspect a disability and need accommodations, you should contact the Center for Accommodations and Support Services (CASS) at 747-5148.” You can also e-mail the office at cass@utep.edu or go by their office in Union Building East. For additional information, visit the CASS website at <http://sa.utep.edu/cass/>

Student Expectations:

1. Homework assignments are due online and must be dated before time of the due date. No late assignments or exams will be accepted for grading. It is the responsibility of the student to ensure that all assignments and exams are completed by the assigned due date. If a student does not submit an assignment or exam by the designated due date, the student will be assessed a grade of zero (0) for that particular assignment or exam. Do not leave things to the last moment.

Student names are required on all assignments-both in the file name and at the top right corner of the paper.

2. All assignments are to be submitted online ONLY, unless otherwise specified. Students must assure that their papers have successfully uploaded as an attachment. Students who have difficulty with submitting their work online must contact the instructor or help desk immediately. Only after this process has been completed will an assignment be accepted via email.

3. All papers submitted for grading in this course must use the instructions in the student handbook. Document file names should adhere to the following pattern: student last name_PT6314_assignment name.doc.

Example: STUDENTNAME_PT6203_Assignment 1.doc.

Assignment: Instructions and rubric will be given in class.

Tentative Topic/Assignment Outline (Subject to change at Dr. Gutierrez's discretion):

Date		Topic	Reading Assignment (Readings may be added/or changed at the discretion of the instructor)
Week 1 20 Jan (Tue) 1:00 – 4:00	Lec/ Lab	Introductions/ Expectations Postural Control/Balance (Gutierrez/Villalobos)	<ul style="list-style-type: none"> • Shumway Cook Chp 11 • O'Sullivan Lab Chp 7 • Hernandez D, Rose DJ. Predicting which older adults will or will not fall using the Fullerton Advanced Balance Scale. <i>Arch Phys Med Rehabil.</i> 2008;89:2309-15; • Pardasancy PK, Latham NK, Jette AM, et al. Sensitivity to change and responsiveness of four balance measures for community-dwelling older adults. <i>Phys Ther.</i> 2012;92:388-397.
21 Jan (Wed) 3:00 – 4:30	Lab	Postural Control/Balance: Tests (Gutierrez)	
22 Jan (Thur) 5:30 – 8:30	Lab	Postural Control/Balance: Treatment (Gutierrez/Carson)	
Week 2 26 Jan (Mon) 3:00 – 4:30	Lec	Vestibular Rehabilitation: Review A&P (Gutierrez)	<ul style="list-style-type: none"> • Review Neuroscience Vestibular A&P. • O'Sullivan Chp 21 • Gobel JA. The ten-minute examination of the dizzy patient. <i>Seminars in Neurology</i> 2001;21:391-398.
26 Jan (Mon) 5:30 – 8:30	Lab	Vestibular Rehabilitation: Tests (Gutierrez/Carson)	
27 Jan (Tue) 1:00 – 4:00	Lab	Vestibular Rehabilitation: BPPV (Gutierrez/Villalobos)	
28 Jan (Wed) 3:00 – 4:30	Lec	Vestibular Rehabilitation: Differential Diagnosis (Gutierrez)	
29 Jan (Thur) 5:30 – 8:30	Lab	Vestibular Rehabilitation: Treatment (Gutierrez/Carson)	
Week 3 2 Feb (Mon) 3:00 – 4:30	Lec	Cognitive/Perceptual (Gutierrez)	
2 Feb (Mon) 5:30 – 8:30	Lab	Alzheimer's/Dementia (Gutierrez/Carson)	
3 Feb (Tue) 1:00 – 2:30	ILC	EXAM 1 (covering everything through Feb 2)	

3 Feb (Tue) 2:45 – 4:15	Lec	Gait: Review normal/abnormal (Diaz)	
4 Feb – 6 Feb		CSM – SERVICE PROJECT	
<u>Week 4</u> 9 Feb (Mon) 3:00 – 4:30	Lec	Gait: Hip/ pelvis (Diaz)	<ul style="list-style-type: none"> • TBA • Chapter from Neuro I: Kubota KL, Eberly, V, Mulroy SJ. Lower Extremity Orthotic Prescription
9 Feb (Mon) 5:30 – 8:30	Lab	Gait: Patient Scenarios (Diaz/Gutierrez)	
10 Feb (Tue) 1:00 – 4:00	Lab	Gait: Debrief patient scenarios (Diaz/Villalobos)	
11 Feb (Wed) 3:00 – 4:30	Lec	Gait: (Diaz)	
12 Feb (Thur) 5:30 – 8:30	Lab	Gait: Orthotics (Diaz/Carson)	
<u>Week 5</u> 16 Feb (Mon) 3:00 – 4:30	Lec	SCI: (SCI/Transverse Myelitis) (Gutierrez)	
16 Feb (Mon) 5:30 – 8:30	Lab	SCI: transfers (Gutierrez/Carson)	
17 Feb (Tue) 1:00 – 4:00	Lab	SCI: ADLs (Gutierrez/Villalobos)	
18 Feb (Wed) 3:00 – 4:30	Lec	SCI: prognostication (Diaz)	
19 Feb (Thur) 5:30 – 8:30	Lab	SCI: problem solving lab (Diaz/Carson)	
<u>Week 6</u> 23 Feb (Mon) 3:00 – 4:30	Lec	SCI: Psychological Issues (Diaz)	
23 Feb (Mon) 5:30 – 8:30	Lab	SCI: Bowel/Bladder/Sex W/C Skills (Gutierrez/Carson)	
24 Feb (Tue)	Lab	SCI: Aging (Gutierrez/Villalobos)	

1:00 – 4:00			
25 Feb (Wed) 3:00 – 4:30	Lec	SCI: Shoulder issues (Gutierrez/Curtis)	
26 Feb (Thur) 5:30 – 8:30	Lab	SCI: Patient Scenarios (Gutierrez/Carson)	
<u>Week 7</u> 2 Mar (Mon) 3:00 – 4:30	Lec	LMN Syndrome: Post-Polio/ Guillain Barre Syndrome Progressive Neurological Disorders: MS/ ALS (Gutierrez)	<ul style="list-style-type: none"> • O’Sullivan Chps 16, 17 • Berscano A, Carpo M, Allaria S, et.al. Long term disability and social status change after Guillain Barre syndrome. <i>J Neurol.</i> 2006;253;214-218. • Gardevia SC, Allen GM, Middleton J. Post-polio syndrome: assessments, pathophysiology and progression. <i>Disabil and Rehab.</i> 2000;22;38-42. • Davidson AC, Auyeng V, Luff R, et. al. Prolonged benefit in post-polio syndrome from comprehensive rehabilitation: a pilot study. <i>Disabil and Rehab.</i> 2009;31;309-317.
2 Mar (Mon) 5:30 – 8:30	Lab	Coordination Testing (Gutierrez/Carson)	
3 Mar (Tue) 1:00 – 4:00	Lab	Coordination Treatment (Gutierrez/Villalobos)	
4 Mar (Wed) 3:00 – 4:30	Lec	Progressive Neurological Disorders: Parkinson’s Disease (Gutierrez/Moody/Brooks)	<ul style="list-style-type: none"> • O’Sullivan Chp 18 • TBA
5 Mar (Thur) 5:30 – 8:30	Lab	Progressive Neurological Disorders: Parkinson’s Disease Patient Scenarios (Gutierrez/Moody/Carson)	
<u>Week 8</u>	SPRING BREAK		
<u>Week 9</u> 16 Mar (Mon) 3:00 – 4:30	EXAM 2 (covering Everything from Feb 3 through Mar 5)		

16 Mar (Mon) 5:30 – 8:30	Lab	W/C Seating (Gutierrez/Gutierrez/Alvarez/ Carson)	<ul style="list-style-type: none"> • O’Sullivan Chp 32 • TBA
17 Mar (Tue)	Lab	NO CLASS	
18 Mar (Wed) 5:30 – 8:30	Lab 5:30 - 8:30	@ State Center W/C Seating (Gutierrez/Gutierrez/Alvarez)	
19 Mar (Thur) 5:30 – 8:30	Lab	Patient Scenarios (Gutierrez/Carson)	
Week 10 23 Mar (Mon) 3:00 – 4:30	Lec	Neuroplasticity (Gutierrez/TBA)	<ul style="list-style-type: none"> • TBA
23 Mar (Mon) 5:30 – 8:30	Lab	Neuroplasticity (Gutierrez/Carson)	
24 Mar (Tue) 1:00 – 4:00	Lec/ Lab	Community Re-entry (Gutierrez/Moody/Kosyluk)	
25 Mar (Wed) 3:00 – 4:30	CLASS REVIEW		
26 Mar (Thur) 5:30 – 8:30	FINAL PRACTICAL EXAM		
<u>Wk 11</u> <u>TBD</u>	FINAL EXAM		