Course title: PHT 6186C Motor Control/Therapeutic Exercise I Summer 2014

Course description The purpose of this 2 credit course is to provide the student with a basic foundation for examining, evaluating, and providing treatment interventions for individuals who have movement dysfunction due to problems with motor control and motor learning. Emphasis is placed on understanding normal and impaired movement through discussion of motor control and motor learning. The ICF model of enablement and the systems model of motor control and the task oriented approach to movement analyis will be used as frameworks for evaluating simple (not complex) movement dysfunction and for developing intervention plans.
Course prerequisites: Course participation is limited to entry-level DPT student in their first year of the UF program.
Credit hours: 2 credits
Course instructor(s): Gloria Miller, PhD, PT gtmiller@phhp.ufl.edu
Lab Assistants: Primary Fredy Mora Solis, PT fredy@ufl.edu;
Secondaries: Sudeshna Chatterjee, PT, sudeshna1@phhp.ufl.edu; Jay Nair, PT: jay19oct@phhp.ufl.edu
Clock hours: 3: 1 lecture 2 lab summer schedule
Class time: Thursday lecture 8:30-9:20; Thursday lab 9:30-12:00/1:00-3:30 . Aquatics lab-see schedule.
Office hours: by appointment via email or personal request.

Objectives: At the conclusion of PHT 6186C the student will be able to

1. Summarize systems theory of motor control and their influence on current clinical practice. (task oriented). Describe the contribution of various therapeutic approaches past and present.
2. Describe the concepts of motor learning theories and their application to physical therapy practice.
3. Describe and apply various theoretical and conceptual frameworks to patient/client management. (Guide, Disablement, Task oriented , Systems)
4. Describe a model for clinical decision making that incorporates components of normal motor control and motor learning.
5. Identify factors critical to motor control and describe basic intervention strategies to optimize the acquisition of motor control.
6. Identify factors critical to motor learning and describe interventions designed to optimize learning.
7. Analyze selected components of a systems motor control model, including cognitive, and motor subsections and describe how they relate to movement function and dysfunction.
8. Given a patient with a simple orthopedic or aging pathology with resulting movement dysfunction, predict the expected impairments/movements dysfunctions that may be detected in the examination/evaluation.
9. Utilizing the five functional mobility treatment areas (mat/bed mobility and supine-sit, sitting activities including reach, grasp, manipulation, sit-stand and transfers, standing and single step reaching activities, gait activities), identify the presence or absence of essential components of specific tasks, hypothesize the underlying impairment, and select an appropriate intervention.
10. Describe and implement basic treatment principles which are important to consider when managing the patient with basic systems deficits and which promote optimal learning (practice, errors, feedback, fatigue).
11. Differentiate between treatments directed at impairment with secondary functional gain and direct functional movement reeducation.
12. Define PNF, underlying neurophysiology for movement control, and select and defend PNF techniques and interventions appropriate to specific patient cases.
13. Develop an examination for a selected patient with specific movement problems, inclusive of standardized assessments, conduct with accuracy, document, develop LTG/STG and a starting plan of intervention with sound rationale. Plan patient progression (see case studies).

14. Select, demonstrate, discuss, and teach therapeutic exercises and functional activities that could be applied to a patient according to the examination findings, goals of treatment, predicted outcomes, and best evidence. Document patient outcomes of intervention.
15. Student competent and confident in explaining rationale for exercise, relationship of exercise to function and correcting patient performance.
16. Facilitates patient's/client's, family's and others' understanding of the the problem and how physical therapy may intervene.
17. Documents plan of care and specific intervention plan, results and progression of intervention, and modification of program as necessary. Able to construct effective HEP with pictures/explanations.
18. Demonstrate professional curiosity, initiative, and responsibility for one's own learning as reflected by appropriate use of class and lab times, readings, and office hours.
19. Demonstrate professional behavior during clinical visits and in class presentations as reflected by appropriate dress, timeliness, active listening, and appropriate questions.

Teaching methods:
Lecture, patient problems, mock patients, class discussion, small group discussion with case studies. Lab practice of psychomotor skills. Case presentations as exemplars, non-examplars and to foster discussion.

Required Textbooks/Materials:
Please use syllabus as a Guide to materials to read
- Shumway-Cook, Woolacott 4th Edition
- Kisner & Colby
- PNF in Practice, Aldler et al 2nd or 3rd edition
- Course Web Page: Web CT

Materials required:
- Clipboard (for practicals, and taking notes in lab)

Reference textbooks and materials (used in previous coursework):
- Guide to Physical Therapy Practice, APTA, newest edition

Class preparation/Instructor expectations:
- All reading assignments will be completed prior to lecture/lab, since reference to this information will be made during class time, and will not always be repeated in detail.
- Students come to lab properly attired (e.g. no need to run back to restroom to change after class has started) and prepared with all materials/equipment.
- Lab assignments have been reviewed prior to lab. Lab time is an opportunity to perfect your skills, and get feedback from faculty
- Students utilize feedback to progress with professional abilities.

ASSIGNMENTS & GRADING: (see grading scale current student handbook online)
2 complex cases – 10 % each 20% of grade (individual work only)
2 written exams 40% each or 80% of grade
2 competencies based on mini cases and complex cases P/F (based on 90% pass rate)

Grading Scale:

93-100 = A	4.00 grade point
90-92 = A-	3.67 grade point
87-89 = B+	3.33 grade point
83-86 = B	3.00 grade point
80-82 = B-	2.67 grade point
79-70 = C	2.00 grade point
69-60 = D	1.00 grade point
Below 60 = E	0 grade point

Test Scores will be posted within one week of the exam. Every effort will be made to return exams in a timely manner for your review. Your patience is appreciated. Students receiving a grade of "C" (less than "80") or less will be *required* to meet with the instructor. A time will be scheduled for all class members to review the exam with the answer key. After exams have been returned, grades will not be changed once a week has elapsed. Students wishing to discuss exam questions should schedule *individual* appointments. Students are responsible for checking with the instructor to ensure that the grade is recorded properly if the grade has been changed.

Dress Code: Professional T shirts and shorts are appropriate attire for lab, although some exercise interventions, e.g. PNF, will need the use of a sports bra for female students. Lecture attire per Student Handbook.

Professional Behavior: Effective professional behavior is critical for a successful transition from the classroom to the clinical setting. The faculty recognizes the importance of these behaviors and has incorporated the development as well as evaluation of these behaviors into each academic course. In order to demonstrate safe and effective professional behavior prior to clinical visits that occur in the third semester of the curriculum, all students must attain "beginner level" as demonstrated by behaviors in the classroom and lab by the end of the second semester in the curriculum. Students will formally self-evaluate their professionalism at midterm and end of second semester. Additional feedback will be provided by peers, instructors, and teaching assistants. Additionally, students must demonstrate 100% safety on all practical exams throughout the curriculum. Should a student fail a practical exam, due to safety or additional reasons, they will have only one opportunity to repeat the exam. Students must maintain entry-level professionalism throughout the remainder of the academic and clinical curriculum. Failure to do so will prevent the student from advancing in the curriculum.

Academic Honesty:
In this professional program we are particularly sensitive to students submitting independent work and to using complete and accurate referencing in complying with the University of Florida Rules - 6Cl-4.0l7 Student Affairs: Academic Honesty Guidelines. Further details regarding the University of Florida honesty policy is available at: www.aa.ufl.edu/aa/Rules/4017.htm

All students are required to abide by the Academic Honesty Guidelines, the following pledge has been accepted by the University and is expected of all students:

"I understand that the University of Florida expects its students to be honest in all of their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action, up to and including expulsion from the University."

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. On all work submitted for credit by UF students, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

Accommodations for students with disabilities: Students requesting classroom accommodations must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

PHT 6186C Motor Control I Summer 2014 – Schedule

Week Order for labs is same for MCI and Modalities	Lecture	Lab	Readings MC text: Shumway-Cook, Woollacott, K&C, Adler Assignments Additional articles will be assigned
1 **5/15** **A→B** Same for mods A goes first for MCI lab, then 1st for Mods lab.	Motor Control – defined Measurement (outcomes) Theories (Systems, etc.) Frameworks – Task Oriented Constraints with emphasis on Neuromuscular Level of intervention- Functional, impairment, augmented, neuroplasticity Relationship to NM Reed	Task oriented approach Task Classification Task Analysis What is normal movement? What commonly is affected? **What happens when movements are "constrained"?** Per common pathologies. Where is the functional deficit? The underlying impairment?	2013-Motor Control Text Chapter 1, Chapter 6 K&C Ch. 1 with attention to Motor learning: 27-43
2 **5/22** **B→A**	Motor Learning Attention/motivation Cognitive – feedback Associative Automatic	Use motor learning principles in phases of exercise education – hands on during cognitive phase- reference of correctness Facilitation in the cognitive phase Facilitation as a permissive condition Scapular retraction Application to pt. education	2013-Motor Control text Chapter 2 K&C Ch. 6 you are responsible for all of Ch.6 Attn to Manual resistance: 186-195
3 **5/29** **A→ B**	Neurophysiology behind Motor Control and Motor Learning **Guest lecturer: Dr. Ross** **Case 1 assigned**	**Exam/Evaluation expanded-Documentation** **Tests and measures of motor control: Coordination, etc.** **PNF:** Def/principles/procedures Neuromuscular reed **;** PNF techniques/procedures ROM/length constraint Contract/relax; Active stretching C/A/C	2013-MC text Ch.3,4 K&C Ch 4 85-88 Ch. 6 195-204 Adler 1,2,3
4 **6/5** **B→ A**	Core stability and Motor Control Measurment Neuromuscular Re-ed Motor control **Guest lecturer: Dr. Beneciuk**	Core stability Further defined Tests and measures Progression/education Core stability – lab Applications Education of the patient	Core: K&C Chapter 16 507-538 Additional readings as assigned* *Dr. Beneciuk
5 **6/12** **A→ B**	**Aquatics lecture**	**PNF continued** **Evidence, Outcomes** PNF techniques applied in straight planes Trunk, thoracic (protract/retract), St. plane manual to st. plane I Short arc/long arc exercises (associ→ automatic)	K&C Ch. 6 (resistance exercise) K&C Ch. 9 (Aquatics) **Aquatics article assignment**

6 **6/19** **B→A** Aquatics labs are June 18/20 (T/Th) OSMI 6:00-7:00/7:00-8:00)	<u>Phase of rehab and Exercise progression</u> Exercise definition and relationship to function And exercise selection Exercise for the level of injury CKC, OKC, eccentric/concentric/isometric Study Guide Exam I Competency I list/schedule	Pelvis/scapular **Guest Instructor: (pool)** **Ben Doody, PTA** **Aquatics** **Shands OSMI: main 273-7004**	K&C Ch. 6 Adler Ch 6
7 6/26 **A→ B**	**Exam I**	**Complex case 1 due** **Competency I**	
8 **7/3**	Postural Control Balance Defining postural control and balance Measurement	Training for postural control and balance anticipation and reaction: Measurement e.g. Berg, POMA, CTSIB	Motor control text Ch. 7/9 Other readings as assigned K&C Ch. 8
9 **7/10** **B→A**	<u>Postural control Balance</u> Measurement **Complex case 2 assigned**	Intervention	
10 **7/17** **A→B**	<u>Functional movement reed</u> Application to function Function Gait Measurement	PNF extremity diagonals, Relationship to function Supine to sit, transfers, sit to stand, Gait e.g. DGI, FGA, PPME, Walk & talk	Chapter 15 MC text K&C Ch 23 Advanced Fxl Tng Evidence article assignments Adler Ch. 7 Adler Ch. 8 151-154 Adler Ch. 10 170-174 Ch. 11 rolling, bridging
11 **7/24** **B→A**	**Complex case 2 due** Functional movement cont'd	Functional activities cont'd Bilateral patterns and fnction Gait continued Relaxation	Relaxation handouts/readings K&C 100-102 **Complex Case 2 due**
12 **7/31** **A→B**	**Exam II**	**Competency II**	