

JEFFERSON COLLEGE

COURSE SYLLABUS

PTA 140

Neuromotor Development

2 Credit Hours

Prepared by:

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PTA140 Neuromotor Development

I. CATALOGUE DESCRIPTION

- A. Prerequisite: Kinesiology and PTA Principles and Procedures I each with a grade of “C” or better
- B. Credit hour award: 2
 Description: This course presents information on basic neuroanatomy, motor development, motor learning, motor control, and then applies it to facilitation techniques used as interventions to improve fundamental skills such as transfers and gait. The information presented in this course will form the basis for task analysis and interventions taught in the PTA Principles II, III, and IV courses later in the curriculum. (Su)

II. EXPECTED LEARNING OUTCOMES AND ASSESSMENT MEASURES

(Numbers in parentheses refer to CAPTE performance expectations)

Expected Learning Outcomes	Assessment Measures
Describe basic principles of motor learning and motor control.	Summative Written Examinations Classroom Discussion/Activity
Describe how neurotransmission occurs at the cellular level and its implications on human function.	Summative Written Examinations Classroom Discussion/Activity
Identify neuroplasticity changes across the lifespan.	Summative Written Examinations Classroom Discussion/Activity
Demonstrate appropriate interactions with patients, physical therapists, and other health care professionals in written, verbal, and nonverbal communication. (3.3.2.1.)	Summative Written Examinations Practical Examinations Skills Checks Class Discussion/Activity Written Assignments
Recognize individual and cultural differences and respond appropriately in all aspects of physical therapy services. (3.3.2.2.)	Practical Examinations Class Discussion/Activity Summative Written Examinations Written Assignments
Demonstrate conduct that reflects practice standards that are legal, ethical, and safe as well as reflect a commitment to meet the expectations of those receiving health care services and members of the profession of physical therapy. (3.3.2.3., 3.3.2.4., 3.3.2.5.)	Practical Examinations Skills Checks Class Discussion/Activity
Demonstrate how to implement the plan of care developed by the physical therapist to achieve short and long term goals and intended outcomes related to transfers and gait. (3.3.2.6.)	Practical Examinations Summative Written Examinations Written Assignments Class Discussion/Activity

<p>Demonstrate competence in implementing components of the plan of care established by the physical therapist to include functional training, developmental activities, and wheelchair activities and mobility. (3.3.2.7., 3.3.2.7.1-5., 3.3.2.7.7).</p>	<p>Practical Examinations Skills Checks</p>
<p>Demonstrate competence in performing components of data collection skills essential for carrying out the plan of care to include safety with devices, safety, status, and progression of patients engaged in gait, locomotion, and wheelchair management and mobility, recognition of normal and abnormal joint movement and muscle tone, and recognition of level of functional status. (3.3.2.8., 3.3.2.8.6., 3.3.2.8.8., 3.3.2.8.14., 3.3.2.8.18., 3.3.2.8.30.)</p>	<p>Practical Examinations Skills Checks</p>
<p>Demonstrate competence in performing components of data collection skills essential for carrying out the plan of care to include recognition of gross and fine motor milestones and righting and equilibrium reactions. (3.3.2.8., 3.3.2.8.19-21.)</p>	<p>Practical Examinations Skills Checks Summative Written Examinations Written Assignments Class Discussion/Activity</p>
<p>Modify interventions within a plan of care established by the physical therapist in response to patient clinical indications and/or changes in patient status and reports this to the supervising physical therapist. (3.3.2.9., 3.3.2.11.)</p>	<p>Classroom Discussion/Activity Written Assignments Practical Examinations Summative Written Examinations</p>
<p>Identify when interventions should not be provided due to changes in the patient's status and report these changes to the supervising physical therapist. (3.3.2.10.)</p>	<p>Classroom Discussion/Activity Written Assignments Summative Written Examinations Practical Examinations</p>
<p>Determine when the direction to perform an intervention is beyond that which is appropriate for a physical therapist assistant and initiate clarification with the physical therapist. (3.3.2.12.)</p>	<p>Class Discussion/Activity Summative Written Examinations Practical Examinations</p>
<p>Explain desired outcomes to the appropriate stakeholders to achieve goals based on the plan of care established by the physical therapist while under the</p>	<p>Classroom Activity/Discussion</p>

direct supervision of a physical therapist. (3.3.2.13., 3.3.2.14.)	
Describe appropriate actions to take in an emergency situation. (3.3.2.15)	Classroom Discussion/Activity Written Assignments Summative Written Examinations Practical Examinations
Describe elements of discharge planning and follow up as directed by the supervising physical therapist. (3.3.2.17.)	Classroom Discussion/Activity Written Assignments Summative Written Examinations Practical Examinations
Perform health care literature database searches. (3.3.2.18.)	Class Discussion/Activity Written Assignments

III. OUTLINE OF TOPICS

- A. Neuroanatomy
 - 1. Major Components of the Nervous System
 - 2. Reaction to Injury
- B. Motor Control and Motor Learning
 - 1. Relationship of Motor Control with Motor Development
 - 2. Relationship of Motor Learning with Motor Development
- C. Motor Development
 - 1. Developmental Time Periods
 - 2. Influence of Cognition and Motivation
 - 3. Developmental Concepts
 - 4. Developmental Processes
 - 5. Gross- and Fine-Motor Milestones
 - 6. Typical Motor Development
 - 7. Posture, Balance, and Gait Changes with Aging
- D. Proprioceptive Neuromuscular Facilitation
 - 1. Basic Principles of Proprioceptive Neuromuscular Facilitation
 - 2. Biomechanical Consideration
 - 3. Patterns
 - 4. Proprioceptive Neuromuscular Facilitation Techniques
 - 5. Developmental Sequence
 - 6. Proprioceptive Neuromuscular Facilitation and Motor Learning
- E. Interventions to Improve Motor Control and Motor Learning
- F. Interventions to Improve Transfers and Wheelchair Skills
- G. Interventions to Improve Locomotor Skills

IV. METHOD(S) OF INSTRUCTION

- A. Lecture
- B. Textbook Readings
- C. Supplemental Handouts
- D. Active Learning in the classroom setting

- E. Case Studies
- F. Hands-on interaction during the laboratory portion of course in which the students act as both the patient and the physical therapist assistant to practice skills.

V. REQUIRED TEXTBOOK(S)

- A. Martin, S., & Kessler, M. (2007). *Neurologic Interventions for Physical Therapy* (2nd ed.). St. Louis, MO: Saunders-Elsevier.
- B. Cameron, M. H. & Monroe, L. (2011). *Physical Rehabilitation for the Physical Therapist Assistant* (1st ed.). St. Louis, MO: Saunders-Elsevier.
- C. O'Sullivan, S. & Schmitz, T. (2010). *Improving Functional Outcomes in Physical Rehabilitation* (1st ed.). Philadelphia, PA: F.A. Davis Company

VI. REQUIRED MATERIALS

- A. A computer with internet access and basic software to include Word and Power Point (available through Jefferson College labs)
- B. Course homepage available through Blackboard
- C. Appropriate clothing to both lab practice and practical testing experience as defined by student handbook.
- D. Binder, paper, pens, pencils with erasers

VII. SUPPLEMENTAL REFERENCES

- A. Class Handouts
- B. Library Resources
 - 1. Supplemental Tests
 - a. Kuchler O'Shea, R. (2009). *Pediatrics for the Physical Therapist Assistant* (1st ed.). St. Louis, MO: Saunders-Elsevier.
 - b. O'Sullivan, S., & Schmitz, T. (2007). *Physical Rehabilitation* (5th ed.). Philadelphia, PA: F. A. Davis Company.
 - c. Dreeben, O. (2012). *Patient Education in Rehabilitation* (1st ed.). Sudbury, MA: Jones & Bartlett Learning.
 - d. Shumway-Cook, A. & Woollacott, M. (2012). *Motor Control: Translating Research into Clinical Practice* (4th ed.). Baltimore, MD: Lippincott Williams & Wilkins.
 - 2. Databases including: "Nursing and Allied Health Collection", "Sports Medicine and Physical Therapy Collection", and "Medline"
 - 3. Periodicals
 - 4. Videos
- C. Internet Resources
 - 1. On-line references
 - 2. Textbook companion website
 - 3. American Physical Therapy Association (APTA) website

VIII. METHOD OF EVALUATION

- A. Summative Written Examinations: 30%
- B. Practical Examinations: 30%
- C. Skills Checks: 10%
- D. Written Assignments: 20%
- E. Attendance/Participation: 10%
- F. Grading Scale:
 - A=92-100%
 - B=84-91.9%
 - C=75-83.9%
 - D=65-74.9%
 - F=64.9% and below

IX. ADA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library: phone 636-797-3000, ext. 3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook. Any student who cheats or plagiarizes will be subject to dismissal from the Physical Therapist Assistant program and will be referred to the college for disciplinary action. (see College website, <http://www.jeffco.edu>).

XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.