

Montgomery County Community
College PTA 210
Pathology & Rehabilitation of Neurological Conditions Across the Lifespan
and Continuum of Care
6 - 5 - 4

COURSE DESCRIPTION:

This course emphasizes the etiology, pathology, prevention, data collection, and appropriate physical therapy interventions related to neurological conditions. Focus on motor control and motor learning throughout the lifespan serves to assist the student in understanding the abnormal. Application of orthotic devices, braces and splints for neurological conditions is discussed. Evidence based practice, clinical research, and justifying interventions based on clinical literature is integrated in the study of neurological conditions. Critical thinking skills are further developed as the student applies data in clinical decision making. During student-to-student practice in the on-campus laboratory setting students use simulated patient scenarios to demonstrate competency attainment. This course is subject to a course fee. Refer to <http://mc3.edu/adm-fin-aid/paying/tuition/course-fees> for current rates.

REQUISITES:

Previous Course Requirements

- PTA 202 Physical Therapist Assistant (PTA) Roles, Relationships and Responsibilities Seminar II
- PTA 221 Clinical Education I

Concurrent Course Requirements

None

COURSE COMMENT

- Registration requires admission to the Physical Therapist Assistant Program

LEARNING OUTCOMES Upon successful completion of this course, the student will be able to:	LEARNING ACTIVITIES	EVALUATION METHODS
1. Identify the etiology, pathology, prevention, signs, symptoms, medical treatment, and physical therapy treatment for common pediatric and adult neurologic conditions.	Lecture / Discussion Textbook Readings Supplemental Handouts Case Study / Application	Written Assignments Summative Written Examinations

2. Demonstrate accurate data collection skills used by a physical therapist assistant in treating adult and pediatric patients with neurologic conditions, based on the physical therapy plan of care.	Lecture / Discussion Textbook Readings Supplemental Handouts Case Study / Application Hands-on laboratory interaction. Demonstration / Practice	Practical Examinations Written Assignments Skills Competency Checks
3. Demonstrate safety and skill while implementing therapeutic interventions with patients with neurologic conditions, based on the physical therapy plan of care.	Lecture / Discussion Textbook Readings Supplemental Handouts Case Study / Application Hands-on laboratory interaction. Demonstration / Practice	Practical Examinations Written Assignments Skills Competency Checks Summative Written Examinations
4. Characterize the influence of common neurologic conditions on gait mechanics.	Lecture / Discussion Textbook Readings Supplemental Handouts Case Study / Application Hands-on laboratory interaction. Demonstration / Application	Practical Examinations Written Assignments Summative Written Examinations
5. Demonstrate appropriate and effective patient/caregiver management utilizing interventions from within the physical therapist's plan of care for patients with neurologic conditions.	Lecture / Discussion Textbook Readings Supplemental Handouts Case Study / Application	Written Assignments Summative Written Examinations
6. Demonstrate appropriate professional behaviors in all interactions with classmates and instructors by displaying all professional behaviors at the intermediate level.	Lecture / Discussion Textbook Readings Supplemental Handouts Case Study / Application Hands-on laboratory interaction. Demonstration / Application	Professional Behaviors Assessment

At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Associate Vice President of Academic Affairs. The benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria.*

SEQUENCE OF TOPICS:

1. Introduction to Neurorehabilitation for the Physical Therapist Assistant
2. Neuroanatomy
3. Normal Movement Development Across the Lifespan
 - a. Theories of Development
 - b. Physiological Changes in Body Systems Across the Lifespan
 - c. Motor Development
4. Motor Control, Motor Learning, and Neuroplasticity
5. Intervention Procedures
 - a. Designing Successful Interventions
 - b. Categories of Intervention
 - c. Emerging Evidence-Based Treatment Approaches
 - d. Specific Intervention Techniques
 - i. Proprioceptive Neuromuscular Facilitation
 - ii. Neuro-Developmental Treatment
6. Examination Procedures
 - a. Tests of Body Functions and Structures
 - b. Observation
 - c. Sensation
 - d. Motor Examination
 - e. Cranial Nerve Examination
 - f. Examinations for Balance
 - g. Standardize Impairment and Functional Tests
7. Psychosocial and Cognitive Issues Affecting Therapy
8. Documentation in Neurorehabilitation
9. Children with Central Nervous System Insult
 - a. Cerebral Palsy, Traumatic and Anoxic/Hypoxic Injury
 - b. Treatment Strategies
 - i. Decreasing Postural Tone
 - ii. Increasing Extensor Tone and Strengthening Muscles for Postural Control
 - iii. Increasing Trunk Flexor Tone and Muscle Strength for Postural Control and Mobility
 - iv. Inhibition and facilitation Techniques
10. Clients with Genetic and Developmental Problems
 - a. Genetic Conditions Leading to Neurological and Motor Development Concerns
 - b. Developmental Problems Without Specific Identified Genetic Conditions
 - c. Physical Therapy Intervention Strategies
11. Clients with Spinal Cord Injury
 - a. Epidemiology of Spinal Cord Injury
 - b. Describing the Neurological Injury
 - c. Clinical Picture of Spinal Cord Injury
 - d. Physical Therapy Interventions

- 12. Clients with Traumatic Brain Injury
 - a. Medical and Recovery Issues
 - b. Physical Therapy Management
 - c. Specific Interventions for Impairments and Functional Limitations
 - d. Special Considerations for the Patient with Brain Injury
 - e. Discharge Planning and Community Reentry
 - f. Special Populations of Patients with Traumatic Brain Injury
- 13. Clients with Stroke
 - a. Types of Stroke
 - b. Selected Physical Therapy Interventions
 - c. Common Impairments Not Directly Addressed by Physical Therapy
- 14. Clients with Degenerative Diseases: Parkinson’s Disease, Multiple Sclerosis, and Amyotrophic Lateral Sclerosis
- 15. Cardiopulmonary Issues Associate with Patients Undergoing Neurorehabilitation

LEARNING MATERIALS:

O’Sullivan, S., Schmitz, T. and Fulk, G. (2019) *Physical Rehabilitation* (7th ed.). Philadelphia, PA: F.A. Davis Company.

O’Sullivan, S. and Schmitz, T. (2016) *Improving Functional Outcomes in Physical Rehabilitation* (2nd ed.). Philadelphia, PA: F.A. Davis Company.

Goodman, C. (2017) *Pathology for the Physical Therapist Assistant* (2nd ed.). St. Louis, MO: Elsevier.

Other learning materials may be required and made available directly to the student and/or via the College’s Libraries and/or course management system.

COURSE APPROVAL:

Prepared by: Robert Cullen, PT, JD, MBA	Date: 9//2015
VPAA/Provost or designee Compliance Verification: Victoria Bastecki-Perez, Ed. D.	Date: 7/14/2016
Revised by: Debbie Dalrymple	Date: 12/17/2017
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D.	Date: 1/9/2018
Revised by: Robert Cullen	Date: 11/3/2020
VPAA or designee Compliance Verification:	Date: 12/11/2020



This course is consistent with Montgomery County Community College's mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.