



## Course Number and Title: PTA 206 Pathology/Treatment of Neurologic Conditions

**Campus Location:**

Georgetown, Wilmington

**Effective Date:**

2020-51

**Prerequisite:**

BIO 123, PTA 101, PTA 102, PTA 115, PTA 116 and (PTA 205 or concurrent)

**Co-Requisites:**

none

**Course Credits and Hours:**

4.00 credits

3.00 lecture hours/week

3.00 lab hours/week

**Course Description:**

In this course, students study neurologically and developmentally involved patients, including positioning, handling, and facilitation of normal motor control through specialized therapeutic techniques.

**Required Text(s):**

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

**Additional Materials:**

None

**Schedule Type:**

Classroom Course

**Disclaimer:**

None

**Core Course Performance Objectives (CCPOs):**

1. Use professional behaviors in the classroom to demonstrate continued development. (CCC 3, 4; PGC 6)
2. Outline the basic structure and function of the nervous system. (CCC 5; PGC 5)
3. Distinguish between the characteristics of normal and abnormal motor development. (CCC 2, 3; PGC 3, 5, 6)
4. Examine the application of neurotherapeutic treatment approaches. (CCC 2, 3; PGC 2, 3, 5)
5. Plan and assess appropriate treatment interventions for the rehabilitation of neurological conditions. (CCC 2, 3; PGC 2, 3, 5, 6)
6. Plan and assess physical therapy interventions for the management of patients with neurological disorders. (CCC 2, 3; PGC 2, 3, 5, 6)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

**Measurable Performance Objectives (MPOs):**

Upon completion of this course, the student will:

1. Use professional behaviors in the classroom to demonstrate continued development.
  1. Employ professional behavior patterns consistent with developing-level generic abilities. These include but are not limited to adhering to designated times for each educational experience, following a dress code, being adequately prepared, participating in class discussions, following laboratory and safety rules and displaying appropriate interpersonal dynamics and communication skills, .
  2. Practice applying professional literature and apply the evidence-based information for continued development of knowledge and skills related to neurological conditions.
  3. Implement the Guide for Conduct of the Physical Therapist Assistant (APTA) and Standards of Ethical Conduct (APTA) to meet the expectations of all stakeholders that include patients and other health care professionals.
2. Outline the basic structure and function of the nervous system.
  1. Differentiate the principle actions of the autonomic nervous system and their effect on patients.
  2. Break down components of the voluntary and involuntary motor system and the common deficits associated with lesions of both systems (including but not limited to cerebellum, basal, and dorsal columns).
  3. Examine the structure and function of the spinal cord and the spinal nerves.
3. Distinguish between the characteristics of normal and abnormal motor development.

1. Relate the role of the reflex arc and muscle spindle in the production of normal and abnormal movement.
  2. Identify the spinal reflexes, tonic reflexes, and cortical reflexes and their role in normal and abnormal motor development.
  3. Differentiate among the characteristics of abnormal muscle tone including flaccidity, rigidity, and spasticity, and assess abnormal tone and range of motion.
  4. Select and perform assessment of equilibrium and righting responses.
  5. Outline and identify the normal development sequence of gross motor and fine motor skill acquisition.
  6. Examine the basic assessment tools used in the evaluation of infants and children.
  7. Describe the physical, cognitive and psychosocial development of people across the age span.
  8. Describe how various neurological deficits affect activities of daily living (ADLs), and adapt interventions to restore function.
4. Examine the application of neurotherapeutic treatment approaches.
1. Apply the concepts of motor control and motor learning and their application to physical therapy practice.
  2. Differentiate the basic treatment philosophies of Bobath, Rood, Brunnstrom, and proprioceptive neuromuscular facilitation (PNF).
  3. Contrast the traditional theories of neurotherapeutic treatment with contemporary theories.
  4. Identify appropriate treatment strategies to modify arousal states in persons with central nervous system (CNS) dysfunction.
  5. Select and perform treatment techniques to normalize muscle tone.
  6. Prepare and perform a progression of therapeutic techniques to facilitate the attainment of righting and equilibrium responses, postural control, and balance using key points of control, sensory input, positioning for support, alignment, and safety according to patient neurological deficits.
  7. Draft and perform treatment activities to assist the development of coordination skills using verbal, visual, and kinesthetic techniques.
  8. Perform proper positioning, bed mobility, handling, and adaptive equipment in the treatment of the neurologically involved patient.
  9. Identify appropriate exercises (including home exercises) within the plan of care (POC) to support physical therapist treatment goals for the neurologically involved client and be able to provide effective instruction to the client or caregiver.
10. Employ the use of perceptual training for patients with visual field deficits.
11. Perform sensory awareness and desensitization exercises in lab scenarios.
12. Prepare appropriate home exercises to support physical therapy treatment goals for the neurologically involved client and/or caregiver.
13. Perform effective instruction to the client or caregiver for handling, positioning, and care for adaptive equipment.
14. Describe gross and fine motor activities appropriate for children with development delay.
15. Safely perform neurotherapeutic treatment techniques to a patient, and exhibit the ability to assess patient's response to treatment and adjust interventions (including termination of intervention) within the physical therapist's plan of care; report information to the supervising physical therapist.
5. Plan and assess appropriate treatment interventions for the rehabilitation of neurological conditions.
1. Describe to patients and caregivers the clinical picture, associated deficits, and secondary complications, and justify the impact of treatment interventions on functional outcomes for the following neurological disorders:
    1. Developmental disabilities (including but not limited to cerebral palsy)
    2. Cerebral vascular accidents
    3. Head trauma
    4. Spinal cord injuries
    5. Degenerative diseases of the central nervous system (CNS) and peripheral nervous system (PNS) (including but not limited to multiple sclerosis and Parkinson's disease)
    6. Aging (including but not limited to dementia)
  2. Differentiate common pediatric or neurological conditions encountered in physical therapy:
    1. Spinal muscular atrophy
    2. Down syndrome
    3. Cerebral palsy
    4. Myelomeningocele
    5. Brachial plexus palsy
    6. Muscular dystrophy
    7. Guillian-Barre syndrome
    8. Meningitis encephalitis
    9. Huntington's chorea
    10. Autism
    11. Myasthenia gravis
    12. Amyotrophic lateral sclerosis (ALS)
  3. Select and perform the appropriate assessment tools used for patients with a variety of neurological conditions.
  4. Select and perform appropriate interventions for the following neurological deficits:
    1. Abnormal muscle tone
    2. Persistence or re-emergence of primitive reflexes
    3. Impaired balance responses
    4. Autonomic nervous system dysfunction
    5. Cognitive dysfunction
    6. Impaired motor control
    7. Abnormal gait
  5. Identify and assess signs of agitation in a neurologically impaired patient receiving physical therapy treatment.
  6. Recognize cultural differences and adapt physical therapy interventions to patients and patients' families with neurologic disorders.
  7. Structure a patient centered inter-professional health care team that provides collaborative patient care along with physical therapy

professionals.

6. Plan and assess physical therapy interventions for the management of patients with neurological disorders.
  1. Formulate an effective treatment approach within the scope of the physical therapy assistant (PTA), including interventions and data collection that meets the proposed goals for a patient with neurologic disorders. Synthesize previous classroom and laboratory knowledge and skills, including but not limited to transfers, activities of daily living (ADLs), handling, wheelchair management and mobility, balance activities, documentation, body mechanics, ambulation training, and data collection.
  2. Identify and document patient progress using data collection and standardized tests in medical records and communicate with physical therapist regarding possible progression, modifications, or discontinuation of physical therapy interventions based on short-term and long-term goals in the physical therapist's initial evaluation. This data collection can include, but is not limited to: manual muscle testing (MMT), muscle tone, goniometry, pain scales, skin inspection, sensation, standardized questionnaires, functional status throughout activities of daily living, developmental milestones, functional range of motion (ROM), joint end feels, posture, gait, balance, wheelchair propulsion, patients' ability to use & care for devices/equipment, length, girth, endurance and vital signs in patient problems.
  3. Coordinate with the physical therapist during discharge planning and follow-up.
  4. Compose psychomotor evaluations on therapeutic interventions for a neurological condition.
  5. Identify when changes in a patient's condition are beyond the PTA's scope to manage independently, and actively seek assistance from the supervising PT when treating neurological conditions.
  6. Describe appropriate actions to be used in an emergency situation during treatment of neurological conditions.
  7. Compose thorough, accurate, logical, concise, timely, and legible documentation using the subjective, objective, assessment, plan (SOAP) note format for patients with neurological disorders.
  8. Interpret current information provided by patients with neurologic disorders, their caregivers and family regarding level of function and general health status.

**Evaluation Criteria/Policies:**

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

**Final Course Grade:**

Calculated using the following weighted average

Evaluation Measure	Percentage of final grade
Summative: 4 Modular Exams equally weighted & Final Exam	51%
Formative: Quizzes, Skill Checks, SOAP Notes	4%
Summative: Psychomotor Assessment <i>Wilmington: 3 Competencies equally weighted and a Final Practical</i> <i>Owens: 3 Competencies equally weighted</i> <i>5 graded labs are equally weighted and combined are have the same weight as a competency grade</i>	32%
Summative: Generic Abilities Tool for Professional Behaviors	5%
Summative: Research Paper & Presentation	8%
TOTAL	100%

**Core Curriculum Competencies (CCCs are the competencies every graduate will develop):**

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

**Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):**

1. Work under the supervision of a physical therapist in an ethical, legal, safe and effective manner.
2. Implement PT interventions within the plan of care.
3. Perform specific data collection techniques related to the plan of care.
4. Demonstrate effective communication in the physical therapy environment.
5. Formulate appropriate judgments and modification to the program within the patient's plan of care.
6. Demonstrate effective interactions and professional behaviors.
7. Participate in career development activities.
8. Exhibit a commitment to the physical therapy profession, physical therapy patients, and the community.

**Disabilities Support Statement:**

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.