Physical Therapy (PT)

PT 1000. College: An Introduction. (1 Hour)
Provides an introduction to the University, college, and health professions to enhance students' understanding of self and the decisions they make academically and socially as members of the University's diverse, multicultural community. Group activities and individual assignments along with active participation in a learning community help students adjust to life on an urban campus, develop a better understanding of the learning process, acquire essential academic skills, and make connections with the faculty and students in the college.

PT 1880. Introduction to Sports Medicine. (4 Hours)
Offers an introductory course intended for students interested in sports, coaching, medicine, and exercise. Exposes students to the field of sports medicine. Emphasizes orthopedic anatomy, exercise principles, and a basic introduction to prevention of injury and illness related to athletes. Includes a cadaveric lab and lectures.

Attribute(s): NUpath Natural/Designed World

PT 1990. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

PT 2990. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

PT 2991. Research in Physical Therapy. (1-4 Hours)
Offers an opportunity to conduct introductory-level research or creative endeavors under faculty supervision. May be repeated once.

PT 3300. Human Gross Anatomy. (3 Hours)
Covers the structure and function of the human body. Emphasizes the skeletal, muscular, digestive, cardiopulmonary, and peripheral nervous systems. Using a regional and systemic approach, explores the details of the limbs, thorax, abdomen, and pelvic regions of the body. Considers basic abnormalities of structure and function via clinical application of these systems.

Prerequisite(s): BIOL 1111 with a minimum grade of D- or BIOL 1113 with a minimum grade of D- or BIOL 2217 with a minimum grade of D-
Corequisite(s): PT 3301

PT 3301. Lab for PT 3300. (1 Hour)
Offers hands-on exploration of the human body utilizing cadaveric specimens and models. Covers the structure and function of the appendicular and axial skeletal systems of the body through prosected human cadavers and osteology. Emphasizes the skeletal, muscular, digestive, cardiopulmonary, and peripheral nervous systems.

Prerequisite(s): BIOL 1112 with a minimum grade of D- or BIOL 1114 with a minimum grade of D- or BIOL 2218 with a minimum grade of D-
Corequisite(s): PT 3300

PT 3400. Human Kinesiology. (4 Hours)
Studies normal movement through the analysis of muscle and joint function. Introduces fundamental examples of pathokinesiology, aberrant motions, and gait and posture. Emphasizes the analysis of the major joints and regions of the body.

Prerequisite(s): BIOL 2217 with a minimum grade of D- or BIOL 1117 with a minimum grade of D-
Attribute(s): NUpath Natural/Designed World

PT 3500. Motor Control of Human Movement. (4 Hours)
Covers two broad areas that impact the human movement system: motor control and motor learning. Examines neural, behavioral, and physical mechanisms that contribute to the control of movement in humans. Focuses on motor control in healthy persons, with some discussion of alterations associated with musculoskeletal and neural impairment. Examines factors that influence the learning of new motor skills (motor learning) as a result of practice and/or experience.

Prerequisite(s): BIOL 2217 with a minimum grade of D- or BIOL 1117 with a minimum grade of D-

PT 3990. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

PT 4990. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

PT 4992. Directed Study. (1-4 Hours)
Offers independent work under the direction of members of the department on a chosen topic. Course content depends on instructor. May be repeated without limit.

PT 4996. Experiential Education Directed Study. (1-4 Hours)
Draws upon the student's approved experiential activity and integrates it with study in the academic major. Restricted to those students who are using it to fulfill their experiential education requirement. May be repeated without limit.

Attribute(s): NUpath Integration Experience

PT 5101. Foundations of Physical Therapy. (3 Hours)
Designed to provide a basic practical understanding of patient care procedures used in physical therapy practice. Covers body mechanics, therapeutic positioning, patient ambulation, transfer techniques, soft tissue mobilization, and documentation. Offers the learner an opportunity to obtain the information needed to use therapeutic modalities in a variety of clinical settings. Introduces physical therapy students to professional behaviors.

Corequisite(s): PT 5102

PT 5102. Lab for PT 5101. (1 Hour)
Accompanies PT 5101. Covers topics from the course through various experiments.

Corequisite(s): PT 5101

PT 5111. Professional Development for Bouvé Graduate Co-op. (1 Hour)
Introduces graduate students to the Bouvé Cooperative Education Program and offers an opportunity to develop job-search and career-management skills. Students perform assessments of their workplace skills, interests, and values and discuss how they impact personal career decisions. Offers students an opportunity to prepare a professional-style résumé, learn proper interviewing techniques, and gain an understanding of the opportunities available to them for co-op. Introduces career paths, choices, and career decision making. Seeks to familiarize students with workplace issues relative to their field of study and to teach them to use myNEU COOL database in the job-search and referral process. Presents and discusses co-op policies, procedures, and expectations of the Bouvé Cooperative Education Program and co-op employers.

PT 5133. Kinesiology. (3 Hours)
Studies normal movement through the analysis of muscle and joint function. Introduces fundamental examples of pathokinesiology, aberrant motions, and postures. Emphasizes analysis of the major joints and regions of the body as related to the field of physical therapy, including aspects of gait analysis. Encourages critical thinking and integrates material learned in prior course work, including, but not limited to, anatomy and physiology.

Attribute(s): NUpath Natural/Designed World

PT 5138. Neuroscience. (4 Hours)
Covers the structure and physiological function of the human nervous system with emphasis on the clinical aspects of motor and somatosensory systems. Studies the anatomy of the brain, brain stem, and spinal cord in specimens and on slides and integrated with the basic physiology of motor and sensory systems. The application of neuroscience to clinical neurological cases is a foundation of this course.

Prerequisite(s): (PT 5131 with a minimum grade of C or PT 5131 with a minimum grade of C) or (PT 6340 with a minimum grade of C ; PT 6341 with a minimum grade of C)
Corequisite(s): PT 5139

PT 5139. Lab for PT 5138. (1 Hour)
Accompanies PT 5138. Covers topics from the course through various experiments.

Corequisite(s): PT 5138

PT 5140. Pathology. (4 Hours)
Covers foundational knowledge of pathological processes of major body systems. Addresses general medicine, laboratory medicine, and pathophysiology as related to patient conditions that impact physical therapy management. Case-based discussion allows for integration of pathology and pharmacology content.

Prerequisite(s): (PT 5131 with a minimum grade of C or PT 5131 with a minimum grade of C) or (PT 6340 with a minimum grade of C ; PT 6341 with a minimum grade of C)

PT 5150. Motor Control, Development, and Learning. (4 Hours)
Covers three broad areas—motor control, motor development, and motor learning. Examines neural, behavioral, and physical mechanisms that contribute to the control of movement in humans. Focuses on motor control in healthy persons, with some discussion of alterations associated with musculoskeletal and neural impairment. Addresses motor development and maturation from intrauterine life through old age (senescence). Considers the interaction of body-system development and growth on acquisition of and changes in typical skill development. Examines factors that influence the learning of new motor skills (motor learning) as a result of practice.

Prerequisite(s): PT 6340 with a minimum grade of C or (PT 5133 with a minimum grade of C ; PT 5138 (may be taken concurrently) with a minimum grade of C)
Corequisite(s): PT 5151

PT 5151. Lab for PT 5150. (1 Hour)
Offers students an opportunity to apply knowledge gained in PT 5150 to activities designed to illustrate various principles and concepts related to motor control, motor development, and motor learning. Uses a series of guiding questions/activities in each laboratory and analyzes associated literature to offer students an opportunity to apply class concepts to healthy individuals and to those with clinical problems related to motor control, motor development, or motor learning.

Corequisite(s): PT 5150
Attribute(s): NUpath Analyzing/Using Data

PT 5160. Psychosocial Aspects of Healthcare. (3 Hours)
Examines interpersonal relationships among patients, families, health professionals, and society, with reference to the impact of and reaction to illness and disability. Identifies personal and societal beliefs, values, and attitudes that affect the role of people with illness or disabilities in our culture and the healthcare system; how patients' beliefs, values, and experiences affect their expectations and interactions with healthcare professionals; and how beliefs, values, and experiences shape professional development and affect relationships with patients.

Attribute(s): NUpath Ethical Reasoning

PT 5165. Sports Medicine: Managing the Injured Athlete. (4 Hours)
Offers students an opportunity to obtain in-depth knowledge in sports medicine. Covers taping and bracing procedures and techniques to assess concussions with various current protocols. Exposes students to current common pathologies within the athletic population. Discusses return-to-play criteria for an athlete once an injury has occurred and has subsequently been treated and rehabilitated.

PT 5170. Motor Control. (3 Hours)
Focuses on the theories and models of neuromuscular control and learning of human movement. Examines the relationship between theory and practice and how motor function may be altered by a variety of factors.

Corequisite(s): PT 5171

PT 5171. Lab for PT 5170. (1 Hour)
Accompanies PT 5170. Covers topics from the course through various experiments.

Corequisite(s): PT 5170

PT 5209. Neurological Rehabilitation 1. (4 Hours)
Covers the foundations of the physical therapy examination, evaluation, and intervention for persons with neurological deficits. Presents examination skills, theoretical bases, and clinical applications of integrated intervention approaches for the patient with a neurological diagnosis. Includes the etiology, pathology, medical management, and physical therapy management of common neurology disorders affecting the adult population. Accompanied by PT 5210.

Prerequisite(s): PT 5150 with a minimum grade of C or PT 5150 with a minimum grade of C
Corequisite(s): PT 5210

PT 5210. Lab for PT 5209. (1 Hour)
Accompanies PT 5209. Covers the foundations of the physical therapy examination, evaluation, and intervention with patients with neurological deficits. Presents clinical procedures for examination skills, evaluation, and clinical applications of integrated intervention approaches for the patient with a neurological diagnosis.

Corequisite(s): PT 5209

PT 5226. Physical Therapy Professional Seminar 2. (2 Hours)
Continues PT 5135 and builds on concepts introduced in the earlier course. Affords students the opportunity to reflect on issues in experiential education and prepare for future experiential learning.

PT 5227. Physical Therapy Project 1. (3 Hours)
Provides students with the opportunity to conduct an independent project under the mentorship of physical therapy faculty in areas such as research, education, clinical practice, administration, or service learning.

Prerequisite(s): (PT 5515 with a minimum grade of C or PT 5515 with a minimum grade of C); (PT 5540 with a minimum grade of C or PT 5540 with a minimum grade of C); (PT 6243 with a minimum grade of C or PT 6243 with a minimum grade of C)
Attribute(s): NUpath Capstone Experience, NUpath Creative Express/Innov, NUpath Formal/Quant Reasoning, NUpath Writing Intensive

PT 5229. Physical Therapy Project 2. (2 Hours)
Provides students with an opportunity to work with individual faculty on scholarship activities to create a scholarly work in partial fulfillment of the requirement for a Doctor of Physical Therapy degree. Allows students to begin or continue their research or education project. Guides students as necessary to enable them to complete their capstone project.

Prerequisite(s): PT 5227 with a minimum grade of C or PT 5227 with a minimum grade of C or CAEP 5150 with a minimum grade of C or CAEP 5150 with a minimum grade of C
Attribute(s): NUpath Capstone Experience

PT 5230. Pediatric and Geriatric Aspects of Life Span Management. (3 Hours)
Incorporates analysis and comparison of methods of physical therapy (PT) management of selected populations across the life span, which includes pediatrics and geriatrics. Focuses on utilizing evidenced-based rationale for clinical decision making within the context of PT examination, evaluation, PT diagnosis, prognosis, and plan of care. Discusses how patient/client management seeks to reflect core professional values, as well as topics of prevention and wellness in these patient populations.

Prerequisite(s): (PT 5209 with a minimum grade of C or PT 5209 with a minimum grade of C); (PT 5505 with a minimum grade of C or PT 5505 with a minimum grade of C); (PT 6241 with a minimum grade of C or PT 6241 with a minimum grade of C)

PT 5321. Applications of Biomechanics in Human Function and Movement. (4 Hours)
Designed to help students develop an understanding of biomechanical concepts, as they apply to the analysis of human movement and function, through experiential learning. Introduces emerging methodologies and techniques in the field of biomechanics, particularly as they relate to human movement. Course activities require both computational analyses and conceptual understanding. Exposes students to types of data acquisition, reduction, analysis, and interpretations. Includes those factors that identify limitations to the action and measurement of human movement. Offers students an opportunity to integrate knowledge emerging from multiple disciplines, including biomechanics, movement sciences, biology, and physics, as those disciplines apply to functional human movement.

PT 5410. Functional Human Neuroanatomy. (4 Hours)
Examines the detailed structure of the human nervous system, linking structure to function at both the clinical and neurobiological level. Offers students an opportunity to obtain a solid functional anatomical foundation for neuroscience. Reviews basic neuroanatomy and then provides a detailed look into the structure of the nuclei within the central nervous system and their connectivity. Examines the role of these structures in motor and sensory function as well as in complex cognitive functions at a physiological and clinical level.

Prerequisite(s): ((BIOL 1113 with a minimum grade of D- or BIOL 2217 with a minimum grade of D- or BIOL 1117 with a minimum grade of D- or BIOL 2299 with a minimum grade of D-); (BIOL 3405 with a minimum grade of D- or PSYC 3458 with a minimum grade of D-)) or graduate program admission
Corequisite(s): PT 5411

PT 5411. Lab for PT 5410. (1 Hour)
Examines the detailed structure of the human nervous system in specimens of the human brain and spinal cord as well as in images of stained sections of these tissues and magnetic resonance images (MRI). The structure of individual nuclei and the main sensory and motor tracts of the nervous system are examined and discussed by students working in small groups. Although focusing on anatomical details, the lab introduces the student to clinical diagnosis of neurological cases.

Corequisite(s): PT 5410

PT 5500. Pharmacology for Physical Therapy. (2 Hours)
Offers a clinically oriented course covering knowledge of clinical pharmacology in the physical therapy profession. Discusses prescription and over-the-counter drugs and common herbal supplements. Drug classification, pharmacokinetics, pharmacodynamics, mechanism of action, drug interactions, and common side effects are brought into the clinical perspective of patient management. Explores recognition of expected drug effects, side effects, idiosyncratic reactions, and signs of abuse or nonadherence. Along with PT 5140, emphasizes the therapist's proper incorporation of pharmacotherapeutic knowledge into patient assessment, differential diagnosis, and design of treatment regimens.

Prerequisite(s): PT 5131 with a minimum grade of C or (PT 6340 with a minimum grade of C ; PT 6341 with a minimum grade of C)

PT 5503. Cardiovascular and Pulmonary Management. (4 Hours)
Discusses physical therapy examination evaluation, interventions, and outcome assessment of common cardiac and pulmonary dysfunctions. Discusses etiology and pathology of common cardiac and pulmonary disorders. Uses case-based learning to promote synthesis of the material.

Prerequisite(s): (PT 5140 with a minimum grade of C or PT 5140 with a minimum grade of C) or (PT 6340 with a minimum grade of C ; PT 6341 with a minimum grade of C)
Corequisite(s): PT 5504

PT 5504. Lab for PT 5503. (1 Hour)
Accompanies PT 5503. Covers topics from the course through various experiments.

Corequisite(s): PT 5503

PT 5505. Musculoskeletal Management 1. (4 Hours)
Discusses physical therapy examination evaluation, interventions, and outcome assessment of common musculoskeletal dysfunctions. Uses case-based learning to promote synthesis of the material.

Prerequisite(s): (PT 5515 with a minimum grade of C or PT 5515 with a minimum grade of C); (PT 5540 with a minimum grade of C or PT 5540 with a minimum grade of C)
Corequisite(s): PT 5506

PT 5506. Lab for PT 5505. (1 Hour)
Accompanies PT 5505. Covers topics from the course through various experiments.

Corequisite(s): PT 5505

PT 5515. Integumentary Systems. (2 Hours)
Applies anatomy, physiology, epidemiology, and pathology to explore the issues of medical, surgical, pharmacological, and psychological and physical therapy management of individuals throughout the life span with integumentary system impairments. Offers learners an opportunity to develop examination skills to derive diagnoses, prognoses, evaluations, and effective physical therapy interventions based on relevant evidence. Includes modalities for wound care and electrophysiological testing and interpretation. Uses case studies to integrate and apply the information obtained through readings, lectures, and lab.

Prerequisite(s): (PT 5101 with a minimum grade of C or PT 5101 with a minimum grade of C); (PT 5102 with a minimum grade of C or PT 5102 with a minimum grade of C)
Corequisite(s): PT 5516

PT 5516. Lab for PT 5515. (1 Hour)
Accompanies PT 5515. Covers topics from the course through various experiments.

Corequisite(s): PT 5515

PT 5540. Clinical Integration 1: Evidence and Practice. (2 Hours)
Designed to prepare physical therapy students to integrate previous courses taught in the curriculum to safely manage patients in the acute-care setting, including the intensive-care unit, the critical-care unit, and step-down settings. Uses a combination of lecture, instruction in the simulation center, and standardized patient interactions. Follows the "Guide to Physical Therapy Practice for Evaluation and Intervention" in these settings. Offers students an opportunity to learn to perform an examination; to evaluate examination data to formulate a plan of care; to provide interventions; to determine a discharge plan for individuals in the acute-care environment; and to demonstrate core professional values in classroom, recitation, and standardized patient interactions.

Prerequisite(s): (PT 5150 with a minimum grade of C or PT 5150 with a minimum grade of C); (PT 5500 with a minimum grade of C or PT 5500 with a minimum grade of C); (PT 5503 with a minimum grade of C or PT 5503 with a minimum grade of C)

PT 5976. Directed Study. (1-4 Hours)
Offers independent work under the direction of members of the department on a chosen topic. Course content depends on instructor. May be repeated without limit.

PT 6000. Leadership, Administration, and Management. (2 Hours)
Offers students an opportunity to develop the ability to analyze and evaluate changes in the healthcare system, health policy, and the impact on the delivery of services with a focus on physical therapy. Appraises key business and management concepts, including personnel, insurance, finance, marketing, productivity, and financial and legal regulations within the context of ethical practice. Emphasizes and examines leadership concepts in the areas of advocacy, legislation, and the promotion of the profession.

Prerequisite(s): (PT 5145 with a minimum grade of C or PT 5145 with a minimum grade of C); (PT 6243 with a minimum grade of C or PT 6243 with a minimum grade of C)

PT 6055. Introduction to Sports Performance. (1 Hour)
Introduces students to injury prevention and covers illnesses related to athletes, management of athletic injury, roles of sports medicine providers, exercise and training principles, and career options in sports for physical therapists. Includes didactic and hands-on training. Offers additional material regarding NU-related DPT coursework and sports residency. This course is designed for Doctor of Physical Therapy students interested in sports medicine, strength and conditioning, and human performance.

PT 6215. Assistive Technology. (3 Hours)
Studies theory and current practice in the use of prosthetics, orthotics, and assisted-living devices.

Prerequisite(s): (PT 5230 with a minimum grade of C or PT 5230 with a minimum grade of C); (PT 6221 with a minimum grade of C or PT 6221 with a minimum grade of C); (PT 6223 with a minimum grade of C or PT 6223 with a minimum grade of C)
Corequisite(s): PT 6216

PT 6216. Lab for PT 6215. (1 Hour)
Accompanies PT 6215. Covers topics from the course through various experiments.

Corequisite(s): PT 6215

PT 6221. Neurological Rehabilitation 2. (4 Hours)
Focuses on the physical therapy management of adults with neurological dysfunctions. Concentrates on management of functional activity limitations, participation restrictions, and impairments resulting from neurological disease and/or trauma. Offers students an opportunity to learn about the etiology, pathology, clinical signs, and medical management of adults with neurological disorders; to learn to perform an examination, evaluate the examination data to formulate a plan of care, and provide interventions; and to use evidence-based decision making.

Prerequisite(s): (PT 5209 with a minimum grade of C or PT 5209 with a minimum grade of C); (PT 5210 with a minimum grade of C or PT 5210 with a minimum grade of C)
Corequisite(s): PT 6222

PT 6222. Lab for PT 6221. (1 Hour)
Accompanies PT 6221. Covers topics from the course through various experiments.

Corequisite(s): PT 6221

PT 6223. Musculoskeletal Management 2. (4 Hours)
Provides an in-depth analysis of musculoskeletal management. Compares intervention protocols as an integral component of this course. Allows, in the lab component, for practical application of spinal joint mobilization, modalities, ergonomic assessment, functional training, and therapeutic exercise. Uses case-based learning to promote synthesis of the material.

Prerequisite(s): (PT 5505 with a minimum grade of C or PT 5505 with a minimum grade of C); (PT 6241 with a minimum grade of C or PT 6241 with a minimum grade of C)
Corequisite(s): PT 6224

PT 6224. Lab for PT 6223. (1 Hour)
Accompanies PT 6223. Covers topics from the course through various experiments.

Corequisite(s): PT 6223

PT 6230. Capstone Project: Human Movement and Rehabilitation Sciences. (4 Hours)
Offers students an opportunity for active engagement to shape the focus of the course and the capstone experience. Encourages production of high-quality written work and professional presentation methods. Students produce a peer-reviewed journal article that includes the methodology, results, limitations, and recommendations for further action based on the outcomes of their projects.

Prerequisite(s): PT 7010 with a minimum grade of C ; PT 7020 with a minimum grade of C

PT 6233. Advanced Physical Therapy Topics in Orthopedics. (2 Hours)
Provides students with an opportunity to obtain in-depth knowledge in orthopedics and physical therapy. Course topics vary each semester offered. Topics are determined by significant events and changes in the field. This course may be taken more than once, as long as topics are different. May be repeated without limit.

Prerequisite(s): PT 5505 with a minimum grade of C or PT 5505 with a minimum grade of C

PT 6237. Advanced Special Topics in Physical Therapy. (2 Hours)
Provides students with an opportunity to obtain in-depth knowledge in a specific physical therapy topic area. Course topics vary each semester offered. Topics are determined by significant events and changes in the field. This course may be taken more than once, as long as topics are different.

Prerequisite(s): PT 6305 with a minimum grade of C or PT 5505 with a minimum grade of C or PT 5505 with a minimum grade of C

PT 6241. Screening for Medical Conditions in Physical Therapy Practice. (4 Hours)
Designed to prepare physical therapy students to recognize the signs and symptoms of medical conditions and adverse drug reactions as they relate to patient examination and to triage appropriately. Emphasizes screening for medical conditions with the goal of recognizing red, yellow, and green flags as they relate to patient care. Stresses medical referral to other healthcare practitioners in an efficient and effective manner.

Prerequisite(s): (PT 5515 with a minimum grade of C or PT 5515 with a minimum grade of C); (PT 5540 with a minimum grade of C or PT 5540 with a minimum grade of C)

PT 6243. Health Education, Promotion, and Wellness. (3 Hours)
Covers health promotion, wellness, disease, impairment, functional limitations, disability, and health risks. Addresses the concept of human difference as a construct relative to behavior theories, lifestyle choices, and health and wellness. Offers learners an opportunity to develop an educational health promotion program for individuals as well as community groups, considering the impact of health disparities, epidemiology, learning styles, barriers, and resources. Offers learners an opportunity to explore a potential consultative role to business, schools, government agencies, and other organizations.

Prerequisite(s): PT 5160 with a minimum grade of C or PT 5160 with a minimum grade of C
Corequisite(s): PT 6245
Attribute(s): NUpath Difference/Diversity

PT 6245. Seminar for PT 6243. (1 Hour)
Offers hands-on practice to apply course concepts from PT 6243, in particular health promotion programming for community-based groups. Simultaneously, learners intentionally address the needs/interests of community partners. Learners reflect on their service-learning during on-campus and online activities/assignments.

Prerequisite(s): PT 5160 with a minimum grade of C
Corequisite(s): PT 6243

PT 6250. Clinical Integration 2: Evidence and Practice. (2 Hours)
Offers students an opportunity to practice demonstrating core professional values and to learn how to skillfully manage complex patients across the life span and across practice patterns in a variety of clinical settings. Integrates evidence-based content from previous courses in the curriculum.

PT 6251. Diagnostic Imaging. (3 Hours)
Designed to integrate diagnostic imaging principles and techniques relevant to physical therapy practice. Reviews commonly used diagnostic imaging techniques and discusses clinical case studies in a case-based online course.

PT 6305. Musculoskeletal Management I. (4 Hours)
Studies the theoretical basis and clinical application of examination and intervention of orthopedic dysfunction of the upper quarter and associated spine that are commonly encountered by physical therapists. Uses an evidence-based, problem-solving approach to prioritize and plan patient care, including medical screening and identifying need for referral. Includes selected topics that reflect the evidence-based philosophies of various noted practitioners in the field of orthopedic physical therapy.

Prerequisite(s): PT 5150 with a minimum grade of C ; PT 5151 with a minimum grade of C ; PT 6350 with a minimum grade of C
Corequisite(s): PT 6306

PT 6306. Lab for PT 6305. (1 Hour)
Accompanies PT 6305. Studies the theoretical basis and clinical application of examination, evaluation, diagnosis, prognosis, and interventions of orthopedic dysfunction of the upper quarter and associated spine that are commonly encountered by physical therapists. Uses an evidence-based, problem-solving approach to prioritize and plan patient care, including medical screening and identifying need for referral. Includes selected topics that reflect the evidence-based philosophies of various noted practitioners in the field of orthopedic physical therapy.

Prerequisite(s): PT 5150 with a minimum grade of C ; PT 5151 with a minimum grade of C ; PT 6350 with a minimum grade of C
Corequisite(s): PT 6305

PT 6330. Functional Anatomy 1. (2 Hours)
Covers the normal structure, function, and principles of biomechanics of the human body. Emphasizes the regions of the head, neck, and trunk. Also considers the basic abnormalities of structure and function.

Corequisite(s): PT 6331

PT 6331. Lab for PT 6330. (1 Hour)
Accompanies PT 6330. Covers the normal structure, function, and principles of biomechanics of the human body through cadaveric exploration, surface anatomy, and analysis of movement. Emphasizes the regions of the head, neck, and trunk.

Corequisite(s): PT 6330

PT 6340. Functional Anatomy 2. (4 Hours)
Covers the normal structure and function and principles of biomechanics of the human body, including the analysis of human movement. Emphasizes the upper and lower extremities. Considers basic abnormalities of structure and function.

Prerequisite(s): PT 6330 with a minimum grade of C ; PT 6331 with a minimum grade of C
Corequisite(s): PT 6341

PT 6341. Lab for PT 6340. (1 Hour)
Accompanies PT 6340. Covers the normal structure, function, and principles of biomechanics of the human body through cadaveric exploration, surface anatomy, and analysis of movement. Emphasizes the skeletal, muscular, nervous, and cardiovascular systems of the upper and lower extremities.

Prerequisite(s): PT 6330 with a minimum grade of C ; PT 6331 with a minimum grade of C
Corequisite(s): PT 6340

PT 6350. Foundations of PT Examination and Therapeutic Activities. (4 Hours)
Designed to educate the learner on how to apply, interpret, and perform introductory physical therapy tests and measures and therapeutic activity and exercise interventions. The tests and measures are components of the physical therapist examination process and examine human movement; and the introductory therapeutic activities and exercises are those that would be selected for treatment after those specific examination techniques. Provides an introductory framework to the patient/client professional relationship. Emphasizes the development of the learner's affective, psychomotor, and cognitive skills necessary to assure proper patient/client examination and intervention in the clinical environment.

Prerequisite(s): (PT 5101 with a minimum grade of C or PT 5101 with a minimum grade of C); (PT 5102 with a minimum grade of C or PT 5102 with a minimum grade of C)
Corequisite(s): PT 6351

PT 6351. Lab for PT 6350. (1 Hour)
Accompanies PT 6350. Provides an introductory framework to the patient/client professional relationship.

Prerequisite(s): (PT 5101 with a minimum grade of C or PT 5101 with a minimum grade of C); (PT 5102 with a minimum grade of C or PT 5102 with a minimum grade of C)
Corequisite(s): PT 6350

PT 6405. Musculoskeletal Management II. (4 Hours)
Studies the theoretical basis and clinical application of examination and intervention of orthopedic dysfunction of the lower quarter and associated spine that are commonly encountered by physical therapists. Uses an evidence-based, problem-solving approach to prioritize and plan patient care, including medical screening and identifying need for referral. Includes selected topics that reflect the evidence-based philosophies of various noted practitioners in the field of orthopedic physical therapy.

Prerequisite(s): PT 6305 with a minimum grade of C ; PT 6306 with a minimum grade of C
Corequisite(s): PT 6406

PT 6406. Lab for PT 6405. (1 Hour)
Accompanies PT 6405. Studies the theoretical basis and clinical application of examination, evaluation, diagnosis, prognosis, and interventions of orthopedic dysfunction of the lower quarter and associated spine that are commonly encountered by physical therapists. Uses an evidence-based, problem-solving approach to prioritize and plan patient care, including medical screening and identifying need for referral. Includes selected topics that reflect the evidence-based philosophies of various noted practitioners in the field of orthopedic physical therapy.

Prerequisite(s): PT 6305 with a minimum grade of C ; PT 6306 with a minimum grade of C
Corequisite(s): PT 6405

PT 6420. PT Administration and Management within the U.S. Healthcare System. (4 Hours)
Provides the foundation of physical therapy administrative management principles required of physical therapists within the U.S. healthcare system. Examines the current and historical practices of the U.S. healthcare system through the lens of physical therapist delivery, including key legislation and policy changes that have impacted physical therapist delivery over time .Comparative evaluation of selected global healthcare systems is undertaken to understand differences. Discusses and applies leadership fundamentals, advocacy skills, and business and management principles to help students develop administrative skills for contemporary physical therapist practice.

Prerequisite(s): PT 5160 with a minimum grade of C

PT 6441. Clinical Education 1. (6 Hours)
Provides students with opportunities to practice examination, evaluation, and intervention skills previously learned in the classroom and on co-op. Students work under the supervision and guidance of a licensed physical therapist.

PT 6442. Clinical Education 2. (6 Hours)
Continues PT 6441. Provides students with additional opportunities to practice examination, evaluation, and intervention skills learned in the classroom and during the previous course. Students are expected to function at a higher level requiring less supervision and guidance from a licensed physical therapist than was needed during their first clinical education experience.

Prerequisite(s): PT 6441 with a minimum grade of S

PT 6450. Clinical Education 3. (8 Hours)
Offers learners an opportunity to practice examination, evaluation, and intervention skills previously learned in the classroom and on co-op. Learners work under the supervision and guidance of a licensed physical therapist and function as members of the healthcare team providing consultation and educational services to others. Offers learners an opportunity to refine documentation skills, to develop administrative skills, and to supervise support personnel. Requires a written assignment designed to identify areas of practice that need to be strengthened during Clinical Education 1. Learners must have transportation available, since assignment to clinical sites outside of Boston and Massachusetts is likely. Learners are responsible for costs of all transportation, housing, background checks, uniforms, and other requirements of the clinical site.

Prerequisite(s): PT 6442 with a minimum grade of S

PT 6505. Musculoskeletal Management 3. (3 Hours)
Builds upon content from earlier musculoskeletal management courses to further provide students with the theoretical basis and clinical application of examination and intervention of more complex orthopedic patient presentations for the extremities, head, spine, and pelvic region. Uses an evidence-based, problem-solving approach to prioritize and plan patient care, including medical screening and identifying need for referral. Offers learners an opportunity to integrate selected topics that reflect the philosophies of various noted practitioners in the field of orthopedic physical therapy.

Prerequisite(s): (PT 6405 with a minimum grade of C ; PT 6406 with a minimum grade of C)
Corequisite(s): PT 6506

PT 6506. Lab for PT 6505. (1 Hour)
Accompanies PT 6505. Uses an evidence-based, problem-solving approach to prioritize and plan patient care, including medical screening and identifying need for referral.

Prerequisite(s): PT 6405 with a minimum grade of C ; PT 6406 with a minimum grade of C
Corequisite(s): PT 6505

PT 6510. Evidence-Based Practice and Research Design. (3 Hours)
Offers an overview of the research process and its application in clinical arenas. Emphasizes the role of the health professional as a consumer of research, with concern for the ethical management and treatment of patients and their families. Elements of research design and their implications in clinical settings provide the framework for the analysis of research. Also emphasizes the use of research findings for evidence-based practice. Encourages interdisciplinary approaches.

PT 6511. Research Methods and Statistics in PT. (2 Hours)
Offers students an opportunity to learn about statistical concepts that can be applied to the PT capstone project (PT 6512 and PT 6513). Additionally, understanding statistics helps students become adept consumers of studies, a necessary component of clinicians to keep informed of the latest research for their own practice.

Prerequisite(s): PT 6510 with a minimum grade of C

PT 6512. DPT Capstone 1. (1 Hour)
Offers students an opportunity to work directly with a faculty mentor(s) on scholarship activities to be disseminated (e.g., peer-reviewed journal article, conference poster) in the future. Students are assigned faculty mentor(s). Mentors determine the type of project students conduct for two semesters. Students are responsible for communicating with their mentor(s) throughout the semester and for completing the work that has been assigned by the specified deadlines. Additionally, students are expected to work cooperatively with fellow students assigned to the group to develop their project.

Prerequisite(s): PT 6511 with a minimum grade of C

PT 6513. DPT Capstone 2. (2 Hours)
Continues PT 6512. Faculty guide students through the completion of their capstone projects. Students are expected to be motivated and self-directed to complete a high-quality project suitable for dissemination.

Prerequisite(s): PT 6512 with a minimum grade of C

PT 6520. Prosthetic Management. (1 Hour)
Exposes the learner to current physical therapy clinical practices related to prosthetic rehabilitation as collaborative team members in the care for individuals with amputations. Discusses examination and implementation of physical therapy interventions in the management of individuals with an amputation. Uses a problem-solving approach to develop critical thinking skills to manage individuals with a variety of amputations and prosthetics, including an understanding of the bridge to robotics. Emphasizes prosthetics of the lower extremity and mobility impairments.

Prerequisite(s): PT 6350 with a minimum grade of C ; PT 6351 with a minimum grade of C
Corequisite(s): PT 6521

PT 6521. Lab for PT 6520. (1 Hour)
Accompanies PT 6520. Seeks to develop learners' hands-on application of examination and intervention for individuals with prosthetics. Uses a problem-solving approach to develop critical thinking skills and care strategies for individuals with a variety of amputations and prosthetics, including an understanding of the bridge to robotics. Emphasizes prosthetics of the lower extremity and individuals' mobility.

Prerequisite(s): PT 6350 with a minimum grade of C ; PT 6351 with a minimum grade of C
Corequisite(s): PT 6520

PT 6550. Pediatric Aspects of Life Span Management. (3 Hours)
Incorporates analysis and comparison of methods of physical therapy (PT) management of the pediatric population. Pediatric population is inclusive of the child, the child's parents, and/or caregivers. Focuses on utilizing evidenced-based rationale for clinical decision making within the context of PT examination, evaluation, PT diagnosis, prognosis, and plan of care. Patient/client management reflects core professional values. Also discusses topics of prevention and promotion of optimal health and wellness in this patient population.

Prerequisite(s): (PT 5209 with a minimum grade of C or PT 5209 with a minimum grade of C); (PT 5210 with a minimum grade of C or PT 5210 with a minimum grade of C)

PT 6555. Geriatric Aspects of Life Span Management. (2 Hours)
Incorporates a comprehensive analysis and comparison of methods of physical therapy (PT) management of the geriatric population. Focuses on utilizing an evidenced-based approach for clinical decision making within the context of PT examination, evaluation, PT diagnosis, prognosis, and plan of care. Patient/client management reflects core professional values. Also discusses topics of prevention and wellness.

Prerequisite(s): (PT 5209 with a minimum grade of C or PT 5209 with a minimum grade of C); (PT 5210 with a minimum grade of C or PT 5210 with a minimum grade of C)

PT 6600. Special Topics. (2 Hours)
Offers learners an opportunity to expand upon current evidence-based topics to reflect current advancements in physical therapist practice. Topics are determined by significant events and changes in the field across areas of clinical practice and in line with accreditation and National Physical Therapist Licensure Examination. Focuses on advanced patient management and complex case analysis that involves multiple systems across the life span. Learners use clinical reasoning theory and evidence-based practice to reflect on patient diagnosis and management.

Prerequisite(s): PT 6405 with a minimum grade of C ; PT 6406 with a minimum grade of C

PT 6962. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

PT 6964. Co-op Work Experience. (0 Hours)
Provides eligible students with an opportunity for work experience. May be repeated once.

PT 7001. Core Concepts in Rehabilitation Science and Research. (3 Hours)
Exposes students to core concepts in rehabilitation science, including theory, experimental design, models of disablement, and knowledge transfer methods. Offers students an opportunity to develop the skills to critically evaluate models and theories used in rehabilitation science in order to apply select models/theories to their own programs of research. Students evaluate research designs and knowledge translation methods relevant to rehabilitation science and apply this information in planning the design, implementation, and dissemination of their own proposed research.

PT 7005. Experimental Design and Applied Statistics. (4 Hours)
Offers an introduction and overview to quantitative human subject research methods typical in movement and rehabilitation sciences as well as other fields. Refers to the set of tools used to develop, design, and complete a study to explore answers to questions through empirical approaches. Emphasizes development of research skills, including the ability to define research problems; write hypotheses; apply research designs; organize, analyze, and present data; perform statistical analyses; and draw relevant conclusions. Offers students an opportunity to formulate testable hypotheses, design experiments using principles of good experimental design, model and analyze experimental data, perform appropriate and valid statistical tests, and interpret the data and statistical outcomes.

PT 7010. Measurement and Analysis of Human Movement and Bioinstrumentation. (4 Hours)
Offers students an opportunity to learn how to measure kinematics, kinetics, and muscle activity using bioinstrumentation, including 3D motion capture system, force plates, and electromyography, as well as to learn signal conditioning and processing techniques and how to compute physiological variables such as joint angles, joint torques, ground reaction force, center of pressure, and center of mass. Topics include programming skills in LabVIEW and MATLAB. Students use this information to formulate solutions to biomechanical problems.

PT 7020. Technologies in Movement and Rehabilitation Science. (4 Hours)
Covers technologies that have relevance to rehabilitation of individuals with disorders of movement. Topics include measurement of human movement, electroencephalography (EEG), functional magnetic resonance imaging (fMRI), electromyography (EMG), virtual reality and gaming, robotics, neuroprosthetics, noninvasive brain stimulation, and peripheral stimulation. Exposes students to a historical perspective on how the technology evolved, applications of the technology, an overview of how the technology works, existing variants, strengths, limitations/gaps, and future directions.

PT 7030. Interdisciplinary Seminar in Rehabilitation Science. (1 Hour)
Engages PhD students in discussions and presentations related to human movement and rehabilitation research in order to help them gain important skills related to critiquing and communicating scientific work. Offers students an opportunity to learn how to provide constructive feedback to colleagues about completed works and works in progress, as well as their communications regarding conference presentations and manuscripts from (or for) peer-reviewed archival journals. Works reviewed include works by students and by world-renowned leaders in the field. Presentations include students, as well as internationally established researchers. May be repeated five times for a maximum of two semester hours.

PT 7990. Thesis. (4 Hours)
Offers analytical, research, and/or experimental work conducted under the auspices of the department.

Prerequisite(s): PT 7995 with a minimum grade of C-

PT 7995. Master's Project. (4 Hours)
Offers analytical and/or experimental work leading to a written report and a final short presentation by the end of the semester.

PT 8984. Research. (1-4 Hours)
Offers an opportunity to conduct research under faculty supervision. May be repeated up to four times.

PT 8986. Research. (0 Hours)
Offers an opportunity to conduct research under faculty supervision. May be repeated without limit.

PT 9000. PhD Candidacy Achieved. (0 Hours)
Indicates successful completion of program requirements for PhD candidacy.

PT 9990. Dissertation Term 1. (0 Hours)
Offers dissertation supervision by members of the department.

Prerequisite(s): PT 9000 with a minimum grade of S

PT 9991. Dissertation Term 2. (0 Hours)
Offers dissertation supervision by members of the department.

Prerequisite(s): PT 9990 with a minimum grade of S

PT 9996. Dissertation Continuation. (0 Hours)
Offers continued dissertation work conducted under the supervision of a departmental faculty member. May be repeated up to five times.

Prerequisite(s): PT 9991 with a minimum grade of S or Dissertation Check with a score of REQ