Physical Therapy and Rehabilitation Science Courses (PTRS)

PTRS Courses

This is a list of courses with the subject code PTRS. For more information, see Physical Therapy and Rehabilitation Science (Carver College of Medicine) in the catalog.

PTRS:5100 Professional Issues and Ethics 1 s.h.
Contemporary issues in clinical practice and professional development; legal and ethical perspectives on human rights, ethical theory and principles for analyzing and acting on ethical problems; professional and peer relationships.

PTRS:5101 Introduction to Physical Therapy Practice 2 s.h.
Professional development of physical therapists; evolution of profession; analysis of current role in health care and public health with respect to societal health challenges; patient management terminology including medical terminology and language utilized in the Guide to Physical Therapist Practice; concepts of enablement models and disablement models, including World Health Organization's International Classification of Functioning, Disability and Health model in the biopsychosocial model of health; introduction to evidence-based practice principles.

PTRS:5102 Principles of Physical Therapy I 2 s.h.
Patient management skills: fostering therapeutic alliance, history taking, systems review, positioning, draping, transfers, body mechanics, assisted gait, wheelchairs, and negotiation of architectural barriers.

PTRS:5103 Principles of Physical Therapy II 2 s.h.
Continuation of PTRS:5102: expansion of existing skills and provides new learning experiences in documentation, assessment of joint range of motion/goniometry, manual muscle testing, preambulatory intervention strategies, gait analysis; musculoskeletal, neuromuscular, and integumentary systems review. Prerequisites: PTRS:5102.

PTRS:5131 Therapeutic Physical Agents 2 s.h.
Theoretical and practical applications for safe, effective use of physical agents (superficial and deep heat, cold, hydrotherapy), electrotherapeutic modalities (biofeedback, NMES, TENS, iontophoresis); massage and soft tissue mobilization; emphasis on problem solving, clinical decision-making.

PTRS:5144 Interaprofessional Education I: Team-Based Approach to Health Care 1 s.h.
Development and interaction within small group of interprofessional students from physical therapy, medicine, pharmacy, dentistry, nursing, and public health; deans and faculty from each college facilitate; three-hour initial session for all disciplines followed by informal monthly electronic scenarios, second formal meeting followed by informal monthly electronic discussions.

PTRS:5201 Musculoskeletal Therapeutics I 3 s.h.
Musculoskeletal techniques and biomechanical principles applied to assessment and evaluation of common orthopedic problems of the spine; problem solving, case-study approach to clinical methods, skill acquisition.

PTRS:5205 Health Promotion and Wellness 3 s.h.
Overview of health promotion, fitness, and wellness strategies, including information on levels of health promotion, risk assessment, applied physiology (skeletal muscle, energy metabolism, and physiological responses to exercise), exercise testing and training guidelines, body composition assessment, and development of individual weight management and exercise training programs; classroom and laboratory experiences.

PTRS:5206 Cardiopulmonary Therapeutics 3 s.h.
Cardiorespiratory anatomy, physiology, and application of basic concepts, techniques in management of patients with acute and chronic cardiac, pulmonary disorders; laboratories.

PTRS:5209 Surface Anatomy 1 s.h.
Laboratory teaching activities that parallel the human anatomy course; observation, palpation, and problem solving skills; upper- and lower-limb, head and neck, thorax, and abdomen.

PTRS:5210 Kinesiology and Pathomechanics 4 s.h.
Normal and pathological movement based on understanding of muscle mechanics, segment and joint mechanics, muscle function; instructor- and student-centered learning experiences; integrative human movement system laboratories.

PTRS:5212 Human Pathology for the Physical Therapist 3 s.h.
Students gain a cursory understanding of the physiologic mechanisms of human health and pathologic mechanisms of disease; emphasis on morphologic changes of cells and tissues, identification of causes of change (etiology), mechanisms of development (pathogenesis), and clinical manifestations of specific disease processes; influence of disease and medical diagnosis on physical therapy practice and physical therapy diagnosis.

PTRS:5215 Applied Clinical Medicine 2 s.h.
Pathological disorders frequently encountered by physical therapists in clinical practice, addressed by physicians and health professionals who are not physical therapists; physical therapy management.

PTRS:5235 Case-Based Learning I 1 s.h.
Small group case study seminars and simulated patient instructor learning experiences; clinical problems coordinated with concurrent courses; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. First in a two-course sequence.

PTRS:5236 Case-Based Learning II 1 s.h.
Small-group case study seminars and simulated patient instructor learning experiences; clinical problems coordinated with concurrent courses taken in curriculum; student centered, problem-based learning format; emphasis on evidence-based practice objectives. Second in a two-part series of integrated courses. Prerequisites: PTRS:5235.

PTRS:5790 Integrated Clinical Education in Physical Therapy I 1 s.h.
Integrated clinical experiences in area physical therapy clinics; overview of diverse nature of practice through half-day experiences; basic skills in examination, intervention, and documentation.

PTRS:5791 Integrated Clinical Education in Physical Therapy II 1 s.h.
Continuation of PTRS:5790; integrated clinical experiences in area physical therapy clinics; overview of diverse nature of practice through full-day clinical experiences; basic skills in examination, intervention, and documentation. Prerequisites: PTRS:5790.

Requirements: Doctor of Physical Therapy program enrollment.

PTRS:6120 Physical Therapy Management and Administration II 2 s.h.
The changing U.S. health care system; physical therapy services across continuum of care, reimbursement to health care providers, mechanisms for controlling costs while providing quality care; clinical vignettes, small group problem solving.
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PTRS:6250 Critical Inquiry I: Evidence-Based Practice 2 s.h.
Topics relevant to evidence-based practice and research design; identification of appropriate questions for research and clinical applications, location and evaluation of available evidence, identification of issues that affect validity of research designs, interpretation of basic statistical analyses.

PTRS:6251 Critical Inquiry II: Rehabilitation Research 2 s.h.
Experience conducting group research projects under faculty supervision; data collection and analysis, manuscript preparation, oral defense of research findings during a formal poster presentation. Prerequisites: PTRS:6250.

PTRS:6252 Critical Inquiry III: Clinical Application 1 s.h.
Principles and procedures learned in PTRS:6250 and PTRS:6251 applied to a clinical setting; students write and present a case report with an evidence-based practice focus, using a clinical case from their final internships. Prerequisites: PTRS:6251. Requirements: Physical Therapy and Rehabilitation Science program enrollment.

PTRS:6253 Functional Neuroanatomy arr.
Basic principles of neuroanatomy and neurophysiology; emphasis on human central nervous system; laboratory emphasis on anatomical study of spinal cord and brain. Offered spring semesters. Requirements: physical therapy and rehabilitation science enrollment or graduate standing. Same as ACB:6252.

PTRS:6792 Integrated Clinical Education in Physical Therapy IV 1 s.h.
Two-week, full-time clinical experience in physical therapy clinics under guidance of physical therapists; theory and practice of physical therapy procedures, competence building in basic skills. Prerequisites: PTRS:6793. Requirements: Doctor of Physical Therapy Program enrollment.

PTRS:6793 Integrated Clinical Education in Physical Therapy III 3 s.h.
Six-week, full-time clinical education experience in a rural health environment. Prerequisites: PTRS:5791. Requirements: Doctor of Physical Therapy program enrollment.

PTRS:6794 Terminal Clinical Education in Physical Therapy I 4 s.h.
Nine week, full-time clinical education experience divided among various settings; development of competence in independent examination, evaluation, and treatment of patients under supervision of clinical faculty. Prerequisites: PTRS:6792. Requirements: Doctor of Physical Therapy program enrollment.

PTRS:6795 Terminal Clinical Education in Physical Therapy II 4 s.h.
Nine-week, full-time clinical education experience divided among various settings; development of competence in independent examination, evaluation, and treatment of patients under supervision of clinical faculty. Prerequisites: PTRS:6794. Requirements: Doctor of Physical Therapy program enrollment.

PTRS:6796 Terminal Clinical Education in Physical Therapy III 4 s.h.
Nine-week, full-time clinical education experience divided among various settings; development of competence in independent examination, evaluation, and treatment of patients under supervision of clinical faculty. Prerequisites: PTRS:6795. Requirements: Doctor of Physical Therapy program enrollment.

PTRS:7812 Biomedical Instrumentation and Measurement 3 s.h.
Introduction to biomedical instrumentation and measurement; understanding sources of error and noise in biomedical research applications; basic circuit analysis, calibration of measurement tools, A/D conversion, digital filtering; lab components. Offered fall semesters of even years.

PTRS:7820 Seminar in Rehabilitation Science 1 s.h.
Exploration of research related to rehabilitation science; lectures by faculty, graduate students, and guest scholars with expertise in areas relevant to rehabilitation science (e.g., neuroscience, physiology, medicine, engineering, pharmacology, integrated physiology).

PTRS:7826 Scientific Writing in Rehabilitation Science 2 s.h.
Knowledge of and experience related to scientific writing, critical review of scientific literature, publication in the biomedical sciences, thesis/dissertation writing, grant writing, scientific presentation, writing used in academic and scientific careers.

PTRS:7875 Analysis of Activity-Based Neural and Musculoskeletal Plasticity 3 s.h.
Examination of neural, muscular, and skeletal plasticity to increased/decreased use in normal and pathological states (chronic inactivity, obesity, metabolic syndromes, orthopedic and neurological injuries); genetic regulation with physical activity and underlying mechanisms contributing to acute and chronic adaptations of muscle, spinal circuitry, and supra-spinal centers; integration of movement control concepts through contemporary papers evaluating short and long latency reflexes, posture and balance control, spasticity, and motor learning in individuals with acute and chronic perturbations to the nervous system; individual research projects.

PTRS:7880 Teaching Practicum arr.

PTRS:7884 Practicum in Research arr.
Laboratory experiences connected with investigative process; individual instruction, observation, activities in methodological development, data acquisition, data analysis aspects of research.

PTRS:7895 Advanced Seminar in Rehabilitation Science arr.
Current status of research for biological, mechanical, psychological components pertinent to cardiopulmonary, musculoskeletal, neuromuscular areas of rehabilitation science; preparation for comprehensive exam.

PTRS:7899 Introduction to Pain: Overview of Theories, Concepts, and Mechanisms 1 s.h.
Overview of pain concepts and mechanisms; general overview of pain, models of pain, peripheral and central mechanisms, and pain inhibition. Requirements: prior neuroscience course.

PTRS:7900 Rehabilitation Research Capstone Project arr.
Specific phases of the research process; development of a research question and associated hypotheses, collection and analysis of data, interpretation and discussion of the information's meaning; presentation to sponsoring mentor's laboratory/program, and written document.

PTRS:7901 Clinical Correlates of Pain: Syndromes and Management 1 s.h.
Common pain conditions and management of pain using an interdisciplinary focus; lectures by University of Iowa Hospitals and Clinics clinicians on a variety of acute and chronic pain conditions and management approaches. Requirements: prior neuroscience course.

PTRS:7902 Molecular, Cellular, and Neural Mechanisms of Pain 2 s.h.
Basic science mechanisms of pain and pain modulation; understanding molecular basis for pain in nociceptive afferents (peripheral sensitization), underlying molecular and neuronal mechanisms of central processing of pain (central sensitization), cortical pain processing, animal and human experimental pain models; readings from past and current literature. Prerequisites: PTRS:7899. Requirements: prior neuroscience course.
PTRS:7903 Rehabilitation Management of Pain 1 s.h.
Basic principles of rehabilitation for pain control including education, exercise, and electrophysical modalities; evidence-based approach to rehabilitation covering mechanisms of action and clinical effectiveness; case studies. Prerequisites: PTRS:7899 and PTRS:7901.

PTRS:7925 Independent Study arr.
Problem-solving experience in physical therapy; commensurate with student's interest, ability.

PTRS:7927 Research in Rehabilitation Science arr.
Placement of physical therapy on sound scientific base; therapy; initiation, refinement, establishment of methods in physical therapy evaluation, treatment; direct clinical and laboratory approach, philosophical treatise, or research proposal.

Problem solving experience in neuro-mechanical systems, commensurate with student interest, ability.

PTRS:7931 Critical Thinking in Pain arr.
Problem solving experience in pain, commensurate with student interest, ability.

PTRS:7932 Critical Thinking in Biomechanics and Human Performance Assessment arr.
Problem solving experience in biomechanics and human performance assessment, commensurate with student interest, ability.

PTRS:7933 Critical Thinking in Activity-Based Plasticity arr.
Problem solving experience in movement control/human performance, commensurate with student interest, ability.

PTRS:7934 Critical Thinking in Neural Plasticity arr.
Problem solving experience in neural plasticity, commensurate with student interest, ability.

PTRS:7935 Critical Thinking in Movement Science arr.
Problem solving experience in movement science, commensurate with student interest; ability.

PTRS:7936 Critical Thinking in Cardiovascular Physiology arr.
Problem solving experience in cardiovascular physiology, commensurate with student interest, ability.