

# Department of Physical Therapy

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## Courses

### PT 701, Human Anatomy, 8 Units

This intensive course in clinically oriented human anatomy from a regional approach. Microscopic and gross human anatomy are explored utilizing lectures, classroom demonstrations, human cadaver dissections, dissection videos, and hands-on functional demonstrations. Biomechanics are studied from functional and clinical approaches. Emphasis is on histology, head, neck, upper extremity, and thorax during the first half of the term; emphasis in the second half is on the spine, pelvis, lower extremity, spinal cord, and internal organs.

**Corequisite:** PT 702

### PT 702, Clinical Skills I, 6 Units

First in a series of courses designed to examine basic evaluation and clinical skills of the physical therapist, this course focuses on objective techniques of assessment for the upper and lower extremity and spine through measurement of range of motion (ROM), muscle testing (MMT), general neurological screening, and palpation. Kinesiology of all joints is studied from functional and clinical approaches, concluding in the assessment of normal gait mechanics. An introduction to body mechanics and documentation is provided to prepare the student for safe clinical practice. Learning takes place through laboratory activities, homework, online videos, and practical examination using a problem-solving approach.

### PT 703, Clinical Neuroscience, 6 Units

This course covers in depth the anatomy and physiology of the central and peripheral nervous systems and neuromuscular function, serving as a foundation for PT 704. It includes correlation of pathology with neurological symptoms and diagnostic tests.

### PT 704, Neurorehabilitation, 8 Units

This course focuses on developing skills used for differential diagnosis, functional evaluation, treatment theory, and management of neurologically impaired adults. Students examine the neurophysiologic rationale for treatment approaches commonly used in physical therapy for neurologically impaired patients. Emphasis is placed on integration and development of hands-on skills in a laboratory setting. Major areas investigated include spinal cord injury, stroke, traumatic brain injury, Parkinson's disease, polyneuropathies, and common degenerative diseases.

### PT 705, Orthopedics I, 6 Units

This course emphasizes the general principles and methodology of rehabilitation of orthopedic patients. Examination of the spine and lower quarter is emphasized. Mobilization, therapeutic exercise programs, and complete evaluation, treatment, and documentation are addressed specifically per diagnosis.

### PT 706, Seminar I, 2 Units

(30 contact hours) This course introduces the student to the physical therapy profession. Historical and legal issues, as well as practice settings and health care trends are addressed. Emphasis is placed on professional development and responsibility of the physical therapist as a lifelong learner.

### PT 707, Professional Relationships, 2 Units

This course introduces the role of the physical therapist as a professional health educator. Emphasis is on developing interpersonal and communication skills in relation to the interaction between therapist and patient, other health professionals, and within groups.

### PT 711, Wellness, 3 Units

This course focuses on the promotion of optimal health, and disease and injury prevention, in the general adult and pediatric populations. It addresses screening techniques and risk assessment, as well as tests and measures related to aerobic capacity, balance, flexibility, strength and endurance, and posture. Findings are applied to exercise prescription.

### PT 724, PT Clinical Skills II, 3 Units

(60 contact hours) This is the second in a series of clinical skills courses and discusses the visual and electromagnetic spectrum instrumentation for the treatment of dysfunction. The focus is on physical agents in relation to treatment.

### PT 726, PT Clinical Skills III, 1 Unit

This clinical skills laboratory course involves 45 contact hours and introduces students to assistive devices, bed mobility, and transfer training. Students perform measurement, selection, and adaptation of assistive devices, and implement bed mobility and transfer training based on patient diagnosis and need. Emphasis is on patient safety with handling, as well as body mechanics and safety of the therapist. Information is reiterated with laboratory activities, case studies, and a practical and written examination using a problem-solving approach.

### PT 742, Prosthetics and Orthotics, 2 Units

(60 contact hours) This course provides foundational knowledge of the types, uses, and fitting of prosthetic and orthotic devices. Rehabilitation intervention is addressed in regard to functional use, measurements, care, adjustments, precautions, and patient education for the appropriate device. Case studies, literature review, lecture, problem-solving models, videos, and laboratory practice are used.

## **PT 744, Professional Ethics, 2 Units**

Students in this course examine the major ethical issues affecting physical therapists and the healthcare profession. It involves an exploration of ethical decision making through examination of moral development, ethical theories and worldviews with specific instruction in ethical problem solving, application of the physical therapy code of ethics, as well as analysis of ethical dilemmas and case studies. Through class and small group discussions the student will examine his/her own moral values, be able to identify ethical problems and dilemmas and effectively evaluate and determine a moral course of action. It will include the ethical obligation for patient and professional advocacy as well as guidelines in spiritual care.

## **PT 748, Orthopedics II, 6 Units**

This course emphasizes the general principles and methodology of rehabilitation of orthopedic patients. Examination of the shoulder, elbow, wrist, hand, and temporomandibular joint is emphasized. Mobilization, therapeutic exercise programs, complete evaluation, disease processes, and documentation are addressed specifically per diagnosis.

## **PT 750, Comprehensive Exams, 1 Unit**

This course gives the student an opportunity to demonstrate their qualifications to enter the clinical section of their physical therapy education.

## **PT 752, Cardiopulmonary Patient Management, 3 Units**

This course presents basic cardiac and pulmonary pathology and theories leading to decision-making skills in cardiopulmonary rehabilitation. Presentation of case studies reinforces management of patients with cardiopulmonary dysfunction. Practical application of theoretical concepts is emphasized.

## **PT 754, General Medicine, 3 Units**

This course gives students experience in the management of general medicine patients with acute, chronic, and terminal diseases. The laboratory portion of the course assists in developing clinical skills and reasoning to determine appropriate and safe therapeutic procedures and protocols for this population.

## **PT 755, Research Methods in Physical Therapy, 3 Units**

This course introduces the student to the concepts of Physical Therapy research. A survey of major research methods is conducted and statistical methods are examined.

## **PT 760, Pediatrics, 4 Units**

This course provides the background knowledge needed to assess functional status, evaluate, and develop appropriate treatment programs for infants and children from premature birth to adolescence. Lab sessions allow for observation and assessment of typical development and the opportunity to experience a variety of intervention strategies.

## **PT 762, Seminar II, 2 Units**

(30 contact hours) The clinical performance instrument is reviewed in this course, and written and oral communication skills specific to the clinic are refined. Expectations of clinical professional behavior are also emphasized. The student presents an in-service on a specific evaluation or treatment approach to be used in the clinic, incorporating lecture and lab into instruction. The student's performance is self assessed, peer assessed, and evaluated by the instructor.

## **PT 764, Current Concepts in Chronic Pain, 2 Units**

In this course students participate in evidence-based discussions incorporating critical appraisal of the evidence, as well as in critical problem solving discussions with case studies. Students also discuss and apply knowledge of abnormal pain mechanisms to common case scenarios incorporating lecture material with current evidence. Further, students evaluate their problem solving strategies through self reflective assignments, peer interaction and evaluation by the course instructor to facilitate self directed learning.

## **PT 768, Administration, 3 Units**

(75 contact hours) This course presents the basic components of administration, financial and staff management, marketing strategies, and public relations for clinical directors and/or owners. Administrative and contractual legal issues and reimbursement mechanisms are explored.

## **PT 769, Pharmacology, 3 Units**

This is an introduction to pharmacology which includes pharmacokinetics and pharmacodynamics. Emphasis is on drugs commonly encountered during rehabilitation. Side effects that alter physical performance and drug effects influenced by exercise are studied.

## **PT 771, Clinical Experience I, 8 Units**

PT 771, PT 773, and PT 775 are three clinical experiences which provide integration of prior didactic work with full-time clinical exposure under the supervision of a licensed physical therapist. Courses may be taken in any order as offered in the curriculum.

## **PT 773, Clinical Experience II, 8 Units**

PT 771, PT 773, and PT 775 are three clinical experiences which provide integration of prior didactic work with full-time clinical exposure under the supervision of a licensed physical therapist. Courses may be taken in any order as offered in the curriculum.

## **PT 774, Capstone I, 3 Units**

In the first of the capstone course series, students choose a clinical question of interest and conduct an extensive literature review.

## **PT 775, Clinical Experience III, 8 Units**

PT 771, PT 773, and PT 775 are three clinical experiences which provide integration of prior didactic work with full-time clinical exposure under the supervision of a licensed physical therapist. Courses may be taken in any order as offered in the curriculum.

## **PT 776, Capstone II, 3 Units**

In this, the second course in the capstone series, research of the clinical question continues through faculty-supervised collection and synthesis of data.

## **PT 778, Diagnostic Imaging, 3 Units**

(45 contact hours) This course familiarizes the Doctor of Physical Therapy student with the indications, instrumentation, and clinical interpretation of orthopedic imaging techniques including plane film X-ray, magnetic resonance, computerized tomography, and radioisotope imaging. Selection protocols for each are discussed to acquaint the student with advantages and disadvantages of each method and what type of information each technique best presents. This course focuses on the clinical interpretation and practical integration of imaging data into rehabilitation treatment regimen design and communication with other medical professionals.

## **PT 779, Special and Emerging Topics, 2 Units**

Students in this course examine specialized topics and techniques of current interest for physical therapists. Lectures and hands-on lab sessions provide opportunities for students to evaluate, develop, and administer a plan of care in each of the topic areas under faculty supervision.

## **PT 781, Integrated Clinical Decision-Making, 1 Unit**

In this course, students integrate didactic learning with patient cases from their concurrent clinical education experience under the mentorship of a faculty member.

## **PT 783, Integrated Community Service and Milestones, 0 Units**

In this course, students apply the knowledge and skills gained throughout the program curriculum in a service-learning experience in the local or global community. Students synthesize faith integration learning and reflect upon their motivation and commitment to integrating service in their future practice as therapists. Students are also introduced to next steps for transitioning into practice, such as the licensure process and continuing education, including residency application.

## **PT 785, Advanced Patient Management, 2 Units**

This is the last in a series of patient management courses. Within a strong clinical reasoning framework, students evaluate and plan intervention strategies for more complex patient problems, as well as for patient impairments complicated by the involvement of multiple other factors/systems. Students integrate analysis skills, manual skills, motor control and motor learning concepts, therapeutic exercise, physical agents, and patient education into the management of the patient's movement. In addition to refining their existing skills, students are introduced to more advanced examination and intervention techniques. Students also employ clinical reasoning to formulate management plans that require prioritization and collaboration with the patient/client in order to accommodate environmental, financial, cultural, psychosocial, and time-restriction factors typical of current clinical practice. The patient problems encountered and analyzed throughout the course, and the clinical reasoning process applied to all components of these clinical problems, facilitate the development of clinical reasoning and clinical pattern recognition.

## **PT 790, Physical Diagnosis Screening, 3 Units**

This course prepares students to utilize various methods of physical examination to identify pathologies that are and are not amenable to physical therapy intervention. Students gain experience with visceral referral patterns, psychological screening, abdominal palpation, and dermatological examination.

## **PT 798, Integumentary and Lymphedema Management, 3 Units**

This course covers basic techniques for integumentary and lymphedema evaluation and management of patient populations. Lecture and hands-on lab sessions provide opportunities for students to evaluate and then develop and administer a plan of care in each of the specialty areas, under faculty supervision.

## **PT 799, Independent Study, 1-6 Units**

Students enroll in this course to pursue independent study investigating subjects and interests that lie beyond regular course offerings. The student explores topics in greater depth than in other courses and/or initiates an individual project. Readings are pursued in accordance with a study plan, which is developed in consultation with a sponsoring faculty member and approved by the department chair.

## **RMS 702, Basic Biostatistics I, 3 Units**

This course focuses on introductory and advanced analysis of variance (ANOVA) methods and their relation to rehabilitation and movement science research. Advanced ANOVA methods covered in this course include repeated measure, mixed design, ANCOVA, and MANOVA. Specifically, students learn to implement, analyze, and report ANOVA findings for APA-style journal publications. Use of SPSS is emphasized.

## **RMS 703, Teaching, Learning, and Assessment Theory and Methods, 3 Units**

This course equips future academicians with knowledge and skills in teaching, learning, and assessment, preparing them to fulfill their roles as instructors in a way that promotes high levels of student engagement and growth. Students in this course develop a coherent personal philosophy of teaching and learning, and create a unit of study reflecting that philosophy that includes meaningful assessments of learning.

### **RMS 704, Research for the Rehabilitation and Movement Scientist, 3 Units**

This course introduces the concepts of research in rehabilitation and movement science: research design and statistical methods, critical evaluation of published research relevant to rehabilitation science, scientific writing, and preparation for conducting clinical research.

### **RMS 705, Instrumentation and Measurement in Rehabilitation and Movement Science, 3 Units**

This course covers the basic principles of how to design and utilize assessment measures and instrumentation, and how to scrutinize their psychometric properties. In addition, students gain greater insight regarding how to select the assessments and instrumentation they intend to use in their PhD field of study.

### **RMS 706, Leadership Theories Applied to Rehabilitation Education and Administration, 3 Units**

In this course students explore leadership theories related to organizational leadership and apply them to the context of higher education. In doing so, students discover and define their individual leadership philosophy and competency model.

### **RMS 708, Literature Appraisal: Systematic Reviews and Meta-analysis, 3 Units**

This course helps students develop important skills in engaging with the literature in the field. Students systematically extract the relevant literature in an area of interest, develop protocols, then critically appraise and succinctly summarize the main findings and relate them to the focus of their doctoral study.

### **RMS 709, Grant Proposal and Scientific Writing, 3 Units**

Students in this course develop valuable skills in designing research studies for grant applications. The course includes a step-by-step introduction to identifying gaps in research and potential funders in the area of interest, crafting research aims and objectives, developing protocols, and creating collaborative grant proposals worthy of funder consideration.

### **RMS 710, Intermediate Biostatistics II, 3 Units**

This course focuses on introductory and advanced regression methods, the latter of which includes hierarchical regression, mediation, moderation, and logistic regression. Students learn to implement, analyze, and report regression findings for APA-style journal publications. Use of SPSS is emphasized.

**Prerequisite:** RMS 702

### **RMS 711, Concentration Independent Inquiry, 3 Units**

This independent inquiry course is designed by the PhD student and approved by the instructor. The course covers an area of inquiry - via research, reading, study, or learning activity - that contributes a dimension of knowledge or understanding to the student's doctoral focus, in addition to that provided in the general program curriculum.

### **RMS 712, Mixed Methods, 3 Units**

This course provides an in-depth study of how to plan, conduct, and analyze studies that use mixed-methods research designs, including correlational, survey, and qualitative methods. Students identify core areas of mixed-methods research in behavioral and applied sciences research and begin building a strong research concept about those areas. This course also emphasizes scale development methods used in behavioral and applied sciences.

### **RMS 714, Neurophysiology of Motor Control, 3 Units**

Students in this course examine recent advances in the neurophysiology of motor control and motor learning, including a cellular basis of neural communication, sensorimotor integration, and control of complex movements. Selected motor disorders are also explored. Course emphasis is on integrating current literature on the neurophysiological mechanisms of motor control with normal and abnormal movements.

### **RMS 715, Current Concepts in Pain Science, 3 Units**

Students in this interactive course learn how to integrate the physiological and biological mechanisms that cause acute and chronic pain, and evaluate the evidence for the various factors-epigenetic, social, psychological, emotional, and environmental-that contribute to normal and abnormal pain. They also learn about the common tools used for measuring pain, as well as intervention techniques. By applying their understanding of pain manifestation, measurement, and intervention, students acquire the skills needed to manage pain effectively.

### **RMS 716, Biomechanical Assessment of Movement, 3 Units**

This course focuses on the theoretical concepts and methodologies related to the study of biomechanics, and helps students develop a theoretical biomechanical research question informed by scientific evidence and knowledge gained throughout the course. Students review traditional and current biomechanical research methods, with a focus on interpretation of previous research and its application to future research questions, and also examine biomechanical demands on tendons, joints, and muscles, as well as whole-body movement patterns. Students participate in hands-on application using biomechanical assessment tools such as 3D motion capture, force-plates, EMG, dynamometers, and clinically relevant biomechanical tests. They also discuss and analyze a variety of available methods for biomechanical analysis, and design appropriate procedures to assess kinematic and kinetic outcomes.

**Prerequisite:** RMS 705

## **RMS 717, Frontiers in Rehabilitation and Movement Science, 3 Units**

This course explores new frontiers in research, education, and healthcare in the field of rehabilitation and movement science. Topics may include justice, equity, diversity, and inclusion, social determinants of health, health equity, health literacy, movement biomarkers, technology, COVID-19, mental health, and wellness among diverse populations. Active discussion of new research literature and developing trends in additional areas of interest will provide students with an opportunity to improve their research agenda.

## **RMS 719, Dissertation Qualifying Examination and Research Prospectus, 1 Unit**

Students in this course prepare for and complete a qualifying exam and write a research prospectus for a future study. The qualifying exam is composed of an oral presentation of the written research prospectus and a comprehensive written exam.

**Prerequisite:** RMS 702, RMS 703, RMS 704, RMS 705, RMS 706, RMS 708, RMS 709, RMS 710, RMS 711, RMS 712, RMS 714, RMS 716, and RMS 724

## **RMS 720, Dissertation I: Introduction and Literature Review, 3 Units**

This course, the first in a series addressing the dissertation, supports students' development of the dissertation proposal, focusing on the preparation and critique of chapter one (the introduction) and chapter two (the literature review).

## **RMS 721, Dissertation II: Methods and Research Proposal, 3 Units**

This course, the second in a series addressing the dissertation, assists students with the continuing development of the first three dissertation chapters and with obtaining Institutional Review Board (IRB) approval, culminating in the proposal defense.

**Prerequisite:** RMS 720

## **RMS 722, Dissertation III: Data Collection, Results, and Analysis, 3 Units**

This course, the third in a series addressing the dissertation, supports students' continued writing of the first four chapters of the dissertation, including data collection, data entry, and analysis.

**Prerequisite:** RMS 720, RMS 721, and successful proposal defense.

## **RMS 723, Dissertation IV: Discussion and Research Defense, 3 Units**

This course, the fourth in a series addressing the dissertation, supports students' completion of the dissertation process, including discussion of the main findings in comparison to published literature, final conclusions, and preparation for the dissertation defense.

**Prerequisite:** RMS 720, RMS 721 and RMS 722

## **RMS 724, Qualitative Analysis, 3 Units**

This course focuses on the design and application of qualitative methods and analysis to address research issues in Rehabilitation and Movement Science. Lectures emphasize the knowledge and skills required to apply qualitative analysis to clinical research. Computer applications of statistical software packages for qualitative data analyses are emphasized in an experiential laboratory component.

## **RMS 749, Dissertation Continuation, 1 Unit**

This course is a self-directed continuation of the student's dissertation work. The course may be repeated until the work is complete.

## **RMS 798, Doctoral Study Continuation, 1 Unit**

This course is a self-directed continuation of the student's doctoral study work. Course may be repeated until the work is complete.

## **RMS 799, Readings in Rehabilitation and Movement Science, 1-3 Units**

Students enroll in this course to pursue independent study investigating subjects and interests that lie beyond regular course offerings. The student explores topics in greater depth than in other courses and/or initiates an individual project. Readings are pursued in accordance with a study plan, which is developed in consultation with a sponsoring faculty member and approved by the department chair.