PHYSICAL THERAPY — GRADUATE (PTGR)

Courses

PTGR 500. Integrative Approach to Early Rehabilitation. 3 Units.
Advanced study in acute and subacute rehabilitation as it applies to the early intervention of physical therapy. Emphasizes wound care management and treatment; cardiopulmonary assessment and treatment; ECG interpretation; and the evaluation process for acute rehabilitation, including spinal cord injury and stroke. Reviews comprehensive team approach, with utilization of neuropsychology and case management.

PTGR 501. Advanced Orthopaedic Specialty Tracks I. 3 Units.
Presents the newest clinical treatment applications over the spectrum of the patient population in the field of orthopaedic physical therapy. Emphasis on the cervicothoracic spine and the shoulder girdle.

PTGR 502. Advanced Orthopaedic Specialty Tracks II. 3 Units.
Presents the newest clinical treatment applications over the spectrum of the patient population in the field of orthopaedic physical therapy. Emphasizes the thoracolumbar and the lumbopelvic regions.

PTGR 503. Medical Documentation and Billing. 3 Units.
Expands on basic principles of medical documentation and communication. Emphasizes expanded skills needed in the clinical setting, including but not limited to the following: documentation following Medicare guidelines and the Guide to Physical Therapy Practice, justification of care using measurable objective data, home health episodic payment, billing and reimbursement, workers compensation, interdisciplinary communication, medical dictation, and electronic medical records and documentation as they relate to physical therapy.

PTGR 504. Science and Biomechanics of the Fascia and the Art of Myofascial Release. 3 Units.
Bridges the science and art of myofascial release to learn clinically and anatomically based approaches to myofascial release. Focuses on how the fascia and muscle create dysfunction in the human body and increase stress to the system, leading to the occurrence of symptoms encountered clinically in the form of common musculoskeletal pathologies.

PTGR 505. Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities. 3 Units.
Advanced study of the management of orthopaedic disorders of the upper extremities, with emphasis on regional interdependency. Includes biomechanics, examination, and intervention relevant to the clinical management of the cervical spine and shoulder complexes, emphasizing refinement of the cervico-thoracic spine and upper-quarter screen and evaluation. Clinical course that strengthens student’s knowledge and application of assessment and treatment. Lecture, laboratory sessions, active learning, and case studies.

PTGR 506. Soft-Tissue Mobilization. 3 Units.
Helps practicing physical therapy clinicians optimize skills and refine selection of the most effective soft-tissue mobilization techniques to maximize specific musculoskeletal functional outcomes. Students learn new techniques and refine and master previously learned techniques through lecture, demonstration, practical examinations, and hand-on techniques.

PTGR 507. Advanced Pediatric Clinical Practice. 3 Units.
Physical therapy management of the pediatric patient. Emphasizes observation and analysis of typical development, common movement dysfunctions, and evidenced-based interventions and treatment techniques for the developmentally delayed child.

PTGR 508. Current Topics in Neurological Rehabilitation. 3 Units.
Presents evidence-based physical therapy treatment applications topics for neurologically impaired patients throughout their lives. Integrates evaluation and treatment of various neurological topics, including acquired brain injury, stroke, spinal cord injury, vestibular disorders, diabetic neuropathies and amputations. Emphasizes the role of the physical therapist in designing treatment plans, integrating family training, and maximizing independence using the International Classification of Functioning, Disability and Health (ICF) model. Teaches integration of various treatment philosophies and techniques and how they apply to patients as they age and navigate the health system.

PTGR 509. Function-Based Rehabilitation. 3 Units.
Evidenced-based course that covers physical therapy practice relevant to adult neurological rehabilitation. Emphasizes NDT, motor learning, and clinical decision making. Exposes students to material through problem-based learning, literature review, lecture, discussion, and intensive hands-on sessions focused on mastery of manual therapy application.

PTGR 510. Neurologic Upper Extremity Management. 3 Units.
Evidenced-based course that covers physical therapy practice relevant to adult neurological rehabilitation. Emphasizes a PNF perspective with a focus on clinical decision making. Exposes students to material through problem-based learning, literature review, lecture, discussion, and intensive laboratory sessions focused on mastery of manual therapy application.

PTGR 511. Advanced Clinical Practice I: Orthopaedic Rehabilitation. 3 Units.
Student demonstrates and practices advanced examination, assessment, and treatment of the lumbar spine, pelvic girdle, and lower extremities. Lecture and demonstration.

PTGR 512. Advanced Clinical Practice II. 3 Units.
Physical therapy management of individuals with vestibular disorders resulting in dizziness and postural instability. Emphasizes application and integration of theoretical constructs, evidenced-based practice, examination, evaluation, diagnosis, prognosis, intervention, and outcomes measurement. Learner-centered pedagogy requiring considerable weekly preclass preparation.

PTGR 513. Advanced Clinical Practice III. 3 Units.
Advanced clinical decision-making skills, with focus on patient classification, clinical-diagnosis practice parameters, and practice guidelines. Emphasizes development of clinical algorithms, clinical prognostic skills, and outcome measures.

PTGR 514. Professional Systems in Management I. 3 Units.
Administering the academic department: personnel selection, development, and evaluation; finance; team development; and leadership theories.
PTGR 515. Cardiopulmonary Approaches to Assessment, Wellness, and Disease. 3 Units.
Review of pathology, etiology, and clinical manifestations of cardiopulmonary disorders commonly encountered by the physical therapist. ECG interpretation and assessment. Practical strategies in the management of patients/clients at risk for chronic vascular disease. Comprehensive overview of the epidemiology, risk factor identification, assessment, and intervention to remediate or ameliorate risk and negative health effects of metabolic syndrome. Emphasizes evidence-based research to guide the development of assessment, prevention, and intervention strategies.

PTGR 516. Movement Science of the Upper Quarter. 3 Units.
Presents theories, research, and clinical applications related to the pathomechanics of spine and upper extremity injuries. Utilizes clinical reasoning and evidence-based practice to support the role of muscular imbalance in the pathogenesis of common orthopaedic disorders of the upper quarter. Provides an understanding of how faulty biomechanics can contribute to spine and upper extremity injuries. Provides a foundation to assist in the diagnosis of movement-related impairments. Supervises students in hands-on laboratory sessions to teach analysis of normal and abnormal movement patterns of the upper quarter. Provides laboratory time to develop skills needed to perform a thorough evaluation of movement dysfunction, focusing on the upper quarter. Assists in the development and design of specific interventions aimed at changing movement dysfunctions of the upper quarter.

PTGR 517. Movement Science: Lower Quarter Biomechanical Relationships. 3 Units.
Presents theories, research, and clinical applications related to the pathomechanics of lumbar spine and lower extremity injuries. Utilizes clinical reasoning and evidence-based practice to support the role of muscular imbalance in the pathogenesis of common orthopaedic disorders of the lower quarter. Provides an understanding of how faulty biomechanics can contribute to lumbar spine and lower extremity injuries. Provides a foundation to assist in the diagnosis of movement-related impairments. Supervises students in hands-on laboratory sessions to teach analysis of normal and abnormal movement patterns of the lower quarter. Provides laboratory time to develop skills needed to perform a thorough evaluation of movement dysfunction, focusing on the lower quarter. Assists in the development and design of specific interventions aimed at changing movement dysfunctions of the lower quarter.

PTGR 518. Topics in Rehabilitation. 1-6 Units.
Lecture and discussion of current topics relating to the practice of physical therapy. Content varies from quarter to quarter. (May be repeated for additional credit for a maximum 6 quarter units.)

PTGR 519. Home Health Physical Therapy for the Post-Acute Patient. 3 Units.
An in-depth course for physical therapy students interested in the home health setting. Special emphasis on Medicare guidelines and the requirements necessary to excel in this progressive and growing setting.

PTGR 520. Cervical Spine. 3 Units.
Expands and applies the framework for examination and intervention to patients with musculoskeletal conditions of the cervical spine. Presents knowledge and skills—evidence-based and best practice; and the format for evaluation and treatment of a patient using advanced orthopedic skills for the cervical spine. Differentiates clinical conditions and enhances clinical decision making—thus helping the student integrate manual therapy into a patient’s plan of care. Links clinical practice guidelines to the International Classification of Functioning, Disability, and Health. Emphasizes clinical guidelines for impairment and function-based diagnosis, examination, and intervention.

PTGR 521. Lumbar Spine. 3 Units.
Expands and applies the framework for examination and intervention to patients with musculoskeletal conditions of the lumbar spine. Presents knowledge and skills—evidence based and best practice; and the format for evaluation and treatment of a patient using advanced orthopedic skills for the lumbar spine. Differentiates clinical conditions and enhances clinical decision making—thus helping the student integrate manual therapy into a patient’s plan of care. Links clinical practice guidelines to the International Classification of Functioning, Disability, and Health. Emphasizes clinical guidelines for impairment and function-based diagnosis, examination, and intervention.

PTGR 522. Assessment and Management of the Knee. 3 Units.
Expands and applies the framework for examination and intervention to patients with musculoskeletal conditions of the knee. Presents knowledge and skills—evidence based and best practice; and the format for evaluation and treatment of a patient, using advanced orthopedic skills for the knee—including tibiofemoral and patellofemoral joints. Differentiates clinical conditions and enhances clinical decision making—thus helping the student integrate manual therapy into a patient’s plan of care. Links clinical practice guidelines to the International Classification of Functioning, Disability, and Health. Emphasizes clinical guidelines for impairment and function-based diagnosis, examination, and intervention.

PTGR 523. Advanced Neurological Rehabilitation. 3 Units.
Studies in-depth the patient with spinal cord injury, including etiology, current treatment techniques in acute and outpatient settings, and principles of exercise physiology. Reviews research activities with regard to a cure for spinal cord injury, as well as the legal aspects of ADA and the individual with a spinal cord injury.

PTGR 524. Women's Health Issues I. 3 Units.
Clinical aspects of women's health issues. How to develop a women’s health program in the clinical setting. Introduces various pathologies and treatment strategies for specific diagnoses that could be encountered in the clinical setting. Women's health during adolescence, the reproductive years, and the geriatric years.

PTGR 525. Women's Health Issues II. 3 Units.
Advanced course further exploring women’s health issues—including treatment strategies for women during various phases of their lives. Anatomy and physiology during adolescence, the reproductive years, and the geriatric years.

PTGR 526. Health-related Quality of Life and Health Satisfaction in Health Care. 3 Units.
Involves students in the incorporation of Loma Linda University’s motto, “To make man whole,” as a critical aspect of improving quality of life. Emphasizes ways to improve quality of life in aging and disabled populations. Uses quality-of-life and health-satisfaction instruments and outcomes to inform students’ decision making and patient care across the life span and as an indicator of successful aging. Students develop a quality-of-life intervention program.
PTGR 527. Skilled Nursing Facility Physical Therapy Practice, Interventions and Outcomes. 3 Units.
An advanced-level course that helps the physical therapist understand and thrive in the skilled nursing clinical setting. Topics include Medicare, Medicaid/Medi-Cal, and private insurance billing and regulations; resource utilization groups (RUGs); common patient populations; treatment strategies; and outcome measurements. Discusses and integrates evidence-based practice into all aspects of the skilled nursing facility stay to maximize outcomes, compliance, and patient satisfaction. Exposes students to material through literature review, lecture, discussion, case studies, and hands-on sessions.

PTGR 528. Residency Level Advanced Seminars. 1 Unit.
Didactic instruction that facilitates students' ability to accurately interpret emerging evidence and contextually apply these principles to a variety of physical therapy conditions by drawing upon a variety of strategies, including traditional classroom instruction, group activities and projects, case presentations, live demonstrations, case-based problem-solving sessions, and role-play activities. Prepares students for specialization in their respective field of clinical interest, and prepares residents to meet the requirements for certification by the American Board of Physical Therapy Specialists.

PTGR 529. Integumentary and Lymphatic Systems: Evaluation and Intervention. 3 Units.
Provides physical therapists with knowledge and skills to identify patients at risk for development of integumentary and lymphatic complications; to prescribe preventive measures to promote skin and lymphatic integrity; and to treat conditions once they develop.

PTGR 531. Advanced Orthopaedic Procedures I. 3 Units.
Student demonstrates and practices advanced examination and treatment of the lumbar spine, pelvic girdle, and lower extremities.

PTGR 532. Advanced Orthopaedic Procedures II. 3 Units.
Student demonstrates and practices advanced examination and treatment of the cervical spine, shoulder girdle, and upper extremities.

PTGR 533. Advanced Orthopaedic Procedures III. 3 Units.
Student demonstrates and practices advanced examination and treatment of the lumbar spine, thoracic spine, and rib cage.

PTGR 534. Sensory Integration Disorders. 3 Units.
Exploration of sensory integration disorders—including nystagmus, fluid abnormalities of the inner ear, and physical therapy management of individuals with chronic motion sensitivity and cervicogenic dizziness. Course emphasizes application and integration of theoretical constructs and evidenced-based practice. Prerequisite: PTGR 512.

PTGR 535. Sensory Integration Disorders II. 3 Units.
Explores sensory integration disorders and clinical applications. Emphasizes fluid abnormalities of the inner and middle ear, cervicogenic dizziness, theoretical constructs, and evidence-based practice. Learner-centered hybrid course pedagogy includes three on-line and two face-to-face classes. Prerequisite: PTGR 534.

PTGR 536. Sensory Integration Disorders III. 3 Units.
Explores sensory integration disorders and clinical applications. Emphasizes the neurophysiology of nystagmus, push-pull system, Ewald's laws, and dynamic visual acuity testing. Learner-centered hybrid-course pedagogy that includes three on-line and two face-to-face classes. Prerequisite: PTGR 534.

PTGR 550. Introduction to Psychoneuroimmunology: The Science of Whole Person Care. 3 Units.
Studies the effect of the neurological system on physical health, with a focus on psychoneuroimmunology. Summarizes scientific disciplines that study brain, immune system, and health behavior interactions that provide the health-care professional with an integrative understanding of lifestyle, whole person care for immune system function, and wellness.

PTGR 551. Clinical Translation of Pain Science. 3 Units.
Provides a clinically translational understanding of pain science, as well as insight into unraveling the mysteries of the silent epidemic of chronic pain. Introduces the neurobiology of pain and the variety of pain mechanisms that affect an average of 77 million patients each year. Explores the psychology and cognitive aspects of pain and how to measure and assess important aspects that contribute to the chronic pain problem. Incorporates a special topic on neuropathic pain and its contribution to the silent pain epidemic as a vehicle to help understand the "centralized pain" component and cognitive behavioral therapies. Discusses pharmacology and its role in the treatment of pain. Introduces basic concepts that help "retrain the brain" in a variety of patients suffering acute pain, while preventing the progression to chronic pain.

PTGR 552. Pain Science: Interactions of the Brain and Body. 3 Units.
Provides an organized framework to enhance understanding of the underpinnings behind the transition from acute to chronic pain states. Presents a comprehensive understanding of the differences between peripheral neurogenic, central, and somatic pain mechanisms. Provides a foundation to help with the clinical decision-making process in the management of patients with acute or chronic pain. Draws on research related to functional MRI and neurocognitive function to understand the relationships between the brain, personality disorders, and acute and chronic pain. Introduces concepts related to the management of peripheral neurogenic, central, and somatic pain disorders.

PTGR 553. Clinical Reasoning and Critical Thinking in Physical Therapy. 3 Units.
Presents theories, research, and clinical applications related to the "cognitive engine" that drives the decision-making process in the evaluation and management of orthopaedic physical therapy patients. Utilizes purposeful and goal-directed thinking that challenges the learner to ask and answer higher-level analytical and evaluative questions. Provides a clinically relevant and intentional line of questioning used for problem solving in the absence of pattern recognition. Provides a framework and foundation that will assist in solidifying the reasoning process of data gathering, data interpretation, evaluation methodology, treatment planning, treatment execution, and prognosing. Assists in providing the learner with a defensible means to justify and rationalize clinical decisions that result in wise actions.

PTGR 554. Writing for the Physical Therapy Professional and Educator. 3 Units.
Enables the student to develop writing processes and techniques that are clear, precise, and audience appropriate. Students practice and reflect on writing in professional and academic genres—such as literature reviews, case studies, and protocols relevant for physical therapists, other health professionals, and educators. Includes discussion regarding various aspects of writing mechanics and structure. Links practical applications to common writing situations found in the health professions and education, ranging from intradisciplinary written communication to preparing an abstract and manuscript for submission.
PTGR 555. Grant Writing for Health Professionals. 3 Units.
Helps students develop effective grant-writing skills essential for acquiring competitive funding from government agencies and private foundations—including content knowledge, writing proficiency, research skills, originality, creativity, and a compelling proposal. Provides students with the background necessary to develop a competitive funding application that demonstrates a systematic, organized approach that is aligned with what is desired by the granting agency. Following the indicated guidelines for submission, students prepare a competitive grant proposal to be submitted to a public or private agency.

PTGR 556. Research and Journal Club Seminars. 1 Unit.
Scientific presentations on novel and emerging research topics by well-established as well as emerging investigators. Student-facilitated journal club seminars provide opportunity for sustained engagement around a shared set of research materials and articles, including recent or innovative publications in the field of rehabilitation and medicine. Topics and materials designed to encourage innovative approaches and thinking in rehabilitation scholarship, with emphasis on physical therapy research and innovations.

PTGR 557. Doctoral Dissertation Seminar. 1 Unit.
A year-long course intended to assist doctoral students at various stages of the dissertation process. Emphasizes development of the dissertation chapters, as well as the oral defense of the dissertation. Prepares the doctoral student for all the components of a multiple chapter dissertation, with emphasis on the literature review, research design, committee formation, institutional review board training, time and project management, framing of the chapters, dissertation format standards, and dissertation defense etiquette.

PTGR 558. Pharmacology in Physical Therapy. 3 Units.
Studies the current issues in basic science, as related to physical therapy. Topics may include current advances in biomechanics, cell and molecular biology, tissue engineering and transplants, pharmacology, and presentation of basic science research. Content includes scientific literature reviews and participation in a wet lab activity that includes development of a question or hypothesis and experimental plan, possible execution of the plan, and interpretation of results.

PTGR 573. Pathokinesiology of Gait. 3 Units.
Advanced observational analysis of normal and abnormal human locomotion, with comparison of pathological differences.
**PTGR 591. Biomechanics I. 3 Units.**
Reviews classic concepts in biomechanics at the tissue, joint, and whole body level. Provides a basic understanding of classic and current biomechanical research and how to interpret/synthesize this research. Explores topics related to muscle and tendon function/dysfunction, joint lever biomechanical demands and function, and whole body analysis of human movement. Facilitates the development of the theoretical framework for biomechanical research questions.

**PTGR 592. Biomechanics II. 3 Units.**
Reviews methodologies related to the biomechanics of human movement. Primary areas of focus include kinematics, kinetics, energetic, inverse dynamics, data processing and interpretation, and muscle force measurements. Focuses on the interpretation of kinematic, kinetic, and energetic data and appropriate measures to quantify movement. Facilitates the development of methods to test biomechanical research questions and apply biomechanical concepts to the clinical environment. Prerequisite: PTGR 591.

**PTGR 599. Comprehensive Examination. 0 Units.**
Required written examination to be completed at the end of the second didactic year for the Doctor of Science degree and the Doctor of Philosophy degree in physical therapy science. Comprehensively evaluates student’s knowledge in four domains without the assistance of outside resources: education, research, clinical practice/science, and ethics/professionalism. Successful completion required for continuation in the program. Prerequisite: PHTH 535 or AHCJ 530; PHTH 536 or AHCJ 531; AHCJ 599.

**PTGR 690. Research Rotations. 1-3 Units.**
Involves students in the research and discovery culture of the University and clinical settings through observation of and/or participation in ongoing faculty research and grant projects; as well as graduate student research projects. Includes research data-collection equipment, mentorship, dissertation defenses, research-finding presentations, and/or pilot studies that students design for this practicum experience.

**PTGR 693. Research and Statistics III: Development and Approval of Research Topic and Questions. 3 Units.**
Research-topic selection, development of research questions, literature review, oral defense of research topic, questions and proposed research design, and approval. Prerequisite: AHRM 582.

**PTGR 694. Proposal Development and Institutional Review Board Approval. 3 Units.**
With oversight by the research guidance committee, student develops a written research proposal that describes the problems to be investigated, the hypotheses and assumptions to be developed, and the proposed experimental design; and that subsequently is submitted to the Office of Sponsored Research for Institutional Review Board approval. Prerequisite: PTGR 693.

**PTGR 695. Research and Statistics V: Data Collection. 3 Units.**
Research data planning, setup, standardization of procedures, collection, electronic data capture, management, and storage leading to dissertation.

**PTGR 696. Research and Statistics VI: Data Analysis. 3,6 Units.**
Individual arrangements for doctoral students to work with their research guidance committee on analysis and presentation of research data. Student prepares manuscript presenting results of doctoral research study.

**PTGR 699. Research and Statistics VII - Dissertation. 3 Units.**
Individual arrangements for doctoral students to work with their dissertation chair and research guidance committee to submit a substantial and acceptable preliminary written doctoral dissertation—either in the traditional formal dissertation or multiple chapter format—in accordance with published guidelines of the Faculty of Graduate Studies, and in the format of the journal in which the candidate hopes to publish. Students prepare and present an oral defense of their research findings.