

PHYSICAL THERAPY – PH.D.

Program director

Everett B. Lohman III

The Department of Physical Therapy offers the Doctor of Philosophy (Ph.D.) degree in physical therapy. This research-oriented program for physical therapists emphasizes pain and movement sciences as well as lifestyle health and wellness, preparing graduates for research, teaching, and administration. Successful completion of a comprehensive written examination, written dissertation, and an oral defense of the dissertation are required. The diploma will be awarded upon completion of the curriculum and recommendation by the School of Allied Health Professions in conjunction with the Faculty of Graduate Studies.

Program description

Designed for the working professional, the Ph.D. in physical therapy resonates with the University's motto, "To make man whole." Physical therapists who are currently practicing or teaching will benefit from a modern, evidence-based curriculum focused on caring for the whole person. Classes are typically held two evenings a week in a traditional (face-to-face), distance-education (online), or blended format to facilitate the balance of work, family, and study. Students may be required to physically come to campus one time during summer quarters of the first and second year for clinical laboratory training and competencies as well as written comprehensive examinations. Aligned closely with our core values, this program provides physical therapy graduates with the skills and experience necessary to pursue careers as researchers and educators.

It is the goal of the program to prepare graduates with:

- Skills to design and conduct novel, original research; provide evidence of an understanding of research design, and the ability to formulate and develop methodologies; collect and reduce data; interpret results; draw defensible conclusions; and effectively disseminate research findings.
- Qualities of lifelong learning and commitment to scholarship following graduation.
- Skills to add to the body of knowledge in physical therapy research literature through publications and presentations.
- Ability to demonstrate a commitment to conducting research in neurology, orthopaedics, pain science, movement science, or lifestyle health and wellness.
- Ability to demonstrate a commitment to providing whole-person care.
- Skills to serve as an educator in entry-level, postprofessional, and graduate-level physical therapy programs.
- Ability to demonstrate personal and group leadership skills at institutional, professional, national, and global levels.

Program learning outcomes

In addition to the stated institutional student learning outcomes (<http://llucatalog.llu.edu/about-university/institutional-learning-outcomes/>), by the end of this program, the graduate should be able to:

1. Demonstrate a commitment to discovery.
2. Demonstrate a commitment to the dissemination of knowledge through publications and presentations.

3. Demonstrate a commitment to developing treatment plans that follow current evidence-based and best practice guidelines.

Technology requirement

Students are required to have a personal computer or laptop, speakers, and a webcam with microphone. Additional hardware may be required. Students will need to have adequate software, internet connection, and technology proficiencies to participate in online learning. Please visit the webpage "LLU Libraries" and select "Information for Students" at <https://libguides.llu.edu/infoforstudents/software> (<https://libguides.llu.edu/infoforstudents/software/>).

Research funding

Each student will be required to conduct one or more research projects in partial fulfillment of the requirements for the Doctor of Philosophy degree in physical therapy. Typical costs for student research projects range from \$2,500 to \$10,000. The physical therapy department will cover the first \$2,500 of approved research expenses. The student and/or sponsor will be required to cover research-related expenses over this amount. When necessary, the program director and dissertation chair will assist the student in attempting to secure funding for unmet research expenses. Additional financial support may be awarded by application for seed-grant funding through the SAHP Research Committee.

General requirements

For more information about program requirements and practices for graduate students, visit the academic policies and information (<http://llucatalog.llu.edu/about-university/academic-policies-information/>) section and the general regulations in the School of Allied Health Professions (<http://llucatalog.llu.edu/allied-health-professions/>) section of this CATALOG. Prospective and current students should also be familiar with the 26 elements for program-specific requirements found on the Ph.D. program's webpage (<https://alliedhealth.llu.edu/academics/physical-therapy/physical-therapy-phd/>).

Admissions

In addition to Loma Linda University (<http://llucatalog.llu.edu/about-university/admission-policies-information/#admissionrequirementstext>) and School of Allied Health Professions (<http://llucatalog.llu.edu/allied-health-professions/#generalregulationstext>) admissions requirements, the applicant must also complete the following requirements:

- Bachelors of Science degree in Physical Therapy plus a master's degree, a Masters of Physical Therapy degree, or a Doctor of Physical Therapy degree from an accredited program, or equivalency.
- Minimum grade point average of 3.3 in academic and professional coursework.
- Proof of physical licensure in the U.S. or equivalency in the country of training.

Must also submit:

- At least one example of written work (e.g., personal essay, term paper, publication, master's thesis or project).
- Curriculum vitae, including work history, formal education, continuing education, licensure and certification, professional organizations, honors, awards, publications, presentations, and grants.
- A formal letter outlining research interests.

- A structured oral interview.

Program requirements

Prior master's degree

For students with a Bachelor of Science degree in physical therapy plus a Masters of Physical Therapy (M.P.T.) degree or another appropriate masters degree

Domain 1: Core courses

PTGR 550	Introduction to Psychoneuroimmunology: The Science of Whole Person Care ⁶	3
PTGR 552	Pain Science: Interactions of the Brain and Body ⁶	3
PTGR 580	Movement Science: Bio-control ⁶	3
PTGR 591	Biomechanics I ⁶	3
PTGR 599	Comprehensive Examination ⁶	0
STAT 515	Grant- and Contract-Proposal Writing ⁵	3

Domain 2: Clinical and applied sciences¹ 18

Select units from the electives table listed below. Courses to be selected in consultation with program director and dissertation chair to enhance the student's knowledge base in regards to their research topic.

Domain 3: Lifestyle health and wellness 6

Select from the following:

AHCJ 528	Lifestyle Health and Wholeness ⁵	
AHCJ 541	Managing Stress ⁵	
AHCJ 546	Therapeutic Humor in Health Care ⁵	

Domain 4: Education, administration, and leadership 9

Select from the following:

AHCJ 506	Educational Evaluation and Clinical Assessment	
AHCJ 509	Transformational Teaching and Learning ⁶	
AHCJ 515	Curriculum Development in Higher Education	
AHCJ 556	Administration in Higher Education ⁶	
AHCJ 564	Collaborative Learning in Higher Education ⁶	
OCTH 605	Education for Health Professionals ⁵	

Domain 5: Religion

One course from each area (RELE, RELR, & RELT) required:

RELR 540	Wholeness and Health ^{4,5}	3
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Choose one course from the followings: 3

RELE 524	Bioethics and Society ⁵	
RELE 525	Ethics for Scientists	
RELE 534	Ethical Issues in Public Health ⁵	
RELE 564	Ethics and Health Disparities ⁵	
RELE 567	World Religions and Bioethics	
RELE 568	Bioethics and the Law	
RELE 588	Philosophical Ethics	

Choose one course from the followings: 3

RELT 500	Biblical Hermeneutics ⁵	
RELT 540	World Religions and Human Health ⁵	
RELT 557	Theology of Human Suffering	

Domain 6: Research and statistics

AHRM 581	Research and Statistics I ⁶	3
AHRM 582	Research and Statistics II ⁶	3
PTGR 594	Evidence-Based Practice in Physical Therapy ⁶	2

PTGR 693	Research and Statistics III: Development and Approval of Research Topic and Questions ⁶	3
PTGR 694	Proposal Development and Institutional Review Board Approval ⁶	3
PTGR 695	Research and Statistics V: Data Collection (3) ^{3,6}	6
PTGR 696	Research and Statistics VI: Data Analysis (3) ⁶	3
PTGR 699	Research and Statistics VII - Dissertation ⁶	3
Total Units		83

Prior Doctor of Physical Therapy (D.P.T.) degree

Domain 1: Core courses

PTGR 550	Introduction to Psychoneuroimmunology: The Science of Whole Person Care ⁶	3
PTGR 552	Pain Science: Interactions of the Brain and Body ⁶	3
PTGR 580	Movement Science: Bio-control ⁶	3
PTGR 591	Biomechanics I ⁶	3
PTGR 599	Comprehensive Examination ⁶	0
STAT 515	Grant- and Contract-Proposal Writing ⁵	3

Domain 2: Clinical and applied sciences¹ 9

Select courses from the electives table listed below. Courses to be selected in consultation with program director and dissertation chair to enhance the student's knowledge base in regards to their research topic.

Domain 3: Lifestyle health and wellness 3

Select from the following:

AHCJ 528	Lifestyle Health and Wholeness ⁵	
AHCJ 541	Managing Stress ⁵	
AHCJ 546	Therapeutic Humor in Health Care ⁵	

Domain 4: Education, administration, and leadership 9

Select from the following:

AHCJ 506	Educational Evaluation and Clinical Assessment	
AHCJ 509	Transformational Teaching and Learning ⁶	
AHCJ 515	Curriculum Development in Higher Education	
AHCJ 556	Administration in Higher Education ⁶	
AHCJ 564	Collaborative Learning in Higher Education ⁶	
OCTH 605	Education for Health Professionals ⁵	

Domain 5: Religion

One course from each area (RELE, RELR, & RELT) required:

RELR 540	Wholeness and Health ^{4,5}	3
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Choose one course from the followings: 3

RELE 524	Bioethics and Society	
RELE 525	Ethics for Scientists	
RELE 534	Ethical Issues in Public Health ⁵	
RELE 564	Ethics and Health Disparities ⁵	
RELE 567	World Religions and Bioethics	
RELE 568	Bioethics and the Law	
RELE 588	Philosophical Ethics	

Choose one course from the followings: 3

RELT 500	Biblical Hermeneutics ⁵	
RELT 540	World Religions and Human Health ⁵	
RELT 557	Theology of Human Suffering	

Domain 6: Research and statistics

AHRM 581	Research and Statistics I ⁶	3
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AHRM 582	Research and Statistics II ⁶	3
PTGR 693	Research and Statistics III: Development and Approval of Research Topic and Questions ⁶	3
PTGR 694	Proposal Development and Institutional Review Board Approval ⁶	3
PTGR 695	Research and Statistics V: Data Collection (3) ^{3,6}	6
PTGR 696	Research and Statistics VI: Data Analysis ⁶	3
PTGR 699	Research and Statistics VII - Dissertation ⁶	3
Total Units		69

¹ All courses will be focused toward research topic.

² PTGR 518 Topics in Rehabilitation are courses related to special topics in rehabilitation (e.g., sports medicine, manual therapy, and neurological).

³ Course to be taken twice—each 3-unit registration pertains to the data collection for one of the two required papers or signifies completion of 50% of data collection.

⁴ Fulfills service learning requirement.

⁵ Course available online only.

⁶ Course available online and on campus.

Elective courses

Grouped by focus

Brain and musculoskeletal imaging

PTGR 518	Topics in Rehabilitation ^{2,6}	1-6
PTGR 584	Functional Magnetic Resonance Imaging	3
PTGR 585	Three-dimension Medical Imaging Quantitation	3

Movement science

PTGR 516	Movement Science of the Upper Quarter	3
PTGR 517	Movement Science: Lower Quarter Biomechanical Relationships	3
PTGR 592	Biomechanics II ⁶	3

Neurological rehabilitation

PTGR 508	Current Topics in Neurological Rehabilitation	3
PTGR 509	Function-Based Rehabilitation	3
PTGR 510	Neurologic Upper Extremity Management	3
PTGR 512	Advanced Clinical Practice II	3
PTGR 523	Advanced Neurological Rehabilitation	3
PTGR 534	Sensory Integration Disorders ⁶	3
PTGR 535	Sensory Integration Disorders II ⁶	3
PTGR 536	Sensory Integration Disorders III ⁶	3
PTGR 573	Pathokinesiology of Gait	3

Orthopaedics

PTGR 501	Advanced Orthopaedic Specialty Tracks I ⁶	3
PTGR 502	Advanced Orthopaedic Specialty Tracks II ⁶	3
PTGR 504	Science and Biomechanics of the Fascia and the Art of Myofascial Release	3
PTGR 505	Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities ⁶	3
PTGR 506	Soft-Tissue Mobilization	3
PTGR 511	Advanced Clinical Practice I: Orthopaedic Rehabilitation	3
PTGR 513	Advanced Clinical Practice III	3

PTGR 520	Cervical Spine ⁶	3
PTGR 521	Lumbar Spine ⁶	3
PTGR 522	Assessment and Management of the Knee ⁶	3

Pain science

PTGR 551	Clinical Translation of Pain Science ⁶	3
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Other applied sciences

PTGR 524	Women's Health Issues I ⁶	3
PTGR 571	Advanced Physiology I: Neurobiology	3
PTGR 577	Pharmacology in Physical Therapy	3
PTGR 578	Medical Screening for Physical Therapists ⁶	3
PTGR 579	Clinical Imaging for Physical Therapist	3

Other clinical specializations

PTGR 515	Cardiopulmonary Approaches to Assessment, Wellness, and Disease	3
PTGR 519	Home Health Physical Therapy for the Post-Acute Patient	3
PTGR 529	Integumentary and Lymphatic Systems: Evaluation and Intervention	3

Courses not identified with one of the above groups

PTGR 531	Advanced Orthopaedic Procedures I	3
PTGR 532	Advanced Orthopaedic Procedures II	3
PTGR 533	Advanced Orthopaedic Procedures III	3

Comprehensive Examination

PTGR 599 Comprehensive Examination is designed to establish that the student has a broad understanding of physical therapy, research biostatistics and basic research methodology, education, bioethics, and professionalism. Since education is a component of the comprehensive exam, students are encouraged to select a minimum of 9 units of teaching/education-related courses from Domain 5. The written comprehensive examination will be administered after students have successfully completed the majority of required courses in Domains 1-6. The comprehensive examination will typically occur during the summer quarter of the student's second year in the Ph.D. in Physical Therapy program.

Noncourse requirement

Advancement to Candidacy

The student may apply for advancement to candidacy after a) passing the comprehensive examination, b) securing support from their research guidance committee, and c) successfully defending their research topic and questions. The candidate's capacity for original, independent investigation and scholarly achievements must be demonstrated by the presentation and oral defense of an acceptable dissertation in order to participate in the commencement ceremony. The candidate must submit a written dissertation to the Faculty of Graduate Studies. The candidate must also submit a minimum of two papers for publication. One paper must be accepted for publication to fulfill program completion requirements.

Normal time to complete the program

Four (4) years (16 academic quarters) – full-time enrollment required