Physical Rehabilitation Science, PhD

Through coursework and participation in research, the Doctor of Philosophy program in physical rehabilitation science emphasizes the development of an individual's expertise as a researcher in rehabilitation science.

Learning Outcomes

Graduates who complete the program are prepared for academic appointments that emphasize research, scholarship, and teaching. They possess:

- theoretical and scientific knowledge to perform basic, applied, or clinical-level original research that leads to scientific presentations, publication in peer-reviewed journals, and competition for extramural funding through scientific grant writing;
- breadth of knowledge in exercise physiology, biomechanics, neuroscience, or motor control specialty areas as they relate to impairment, functional limitation, and disability; and
- theoretical and practical skills required for college or university teaching at the professional entry and advanced graduate levels.

Requirements

The Doctor of Philosophy in physical rehabilitation science requires a minimum of 72 s.h. of graduate credit. Students must maintain a UI cumulative grade-point average of at least 3.00.

The program is designed to advance a student's ability to independently develop and carry out research that establishes the scientific basis for the prevention, evaluation, and treatment of impairments, functional limitations, and disability. The curriculum is flexible enough to accommodate research focusing on basic, applied, or clinical studies in the rehabilitation sciences. Students have access to the program's research laboratories (see Facilities in this section of the catalog).

Curriculum

Students and their faculty advisors develop an individualized study plan. A preliminary study plan is developed within the first year of study for full-time students and within the second year of study for part-time students; a final plan is submitted to the Graduate College when the PhD comprehensive examination is scheduled.

To ensure breadth of knowledge, all students complete specific core, research, and scientific specialty area content courses. Elective courses are selected to provide in-depth study of the specialty; they are complemented by an advanced seminar course specific to a student's specialty and taken in preparation for the comprehensive examination.

Students must satisfactorily complete the comprehensive examination, which is taken after all required coursework is completed. Doctoral study culminates with 12 s.h. of thesis research and an oral examination.

General Core Requirement

PhD students must complete the following core requirements. In addition to the following courses, the Collaborative Institutional Training Initiative (CITI)—online, web-based training—must be completed before a student enrolls in BMED:7270 and BMED:7271.

Course #	Title	Hours
All of these:		
PTRS:7812	Biomedical Instrumentation and Measurement	3
PTRS:7820	Seminar in Rehabilitation Science (taken twice for 1 s.h. each)	2
PTRS:7880	Teaching Practicum	arr.
BIOS:5120/ IGPI:5120/ STAT:5610	Regression Modeling and ANOVA in the Health Sciences	3
BMED:7270	Scholarly Integrity/ Responsible Conduct of Research I	0
BMED:7271	Scholarly Integrity/ Responsible Conduct of Research II	0
PSQF:7385/ CSED:7385/ EDTL:7385/ EPLS:7385/ GRAD:7385	Teaching and Learning in Higher Education	3
One of these:		
BIOS:4120	Introduction to Biostatistics	3
STAT:4143/ PSQF:4143	Introduction to Statistical Methods	3

Research Requirement

Students complete at least 27 s.h. from the following. The capstone course PTRS:7900 is recommended but not required for students who enter the program with a master's or doctoral-level degree; however, it is required for students who enter with a bachelor's degree.

Course #	Title	Hours
PTRS:7826	Scientific Writing in Rehabilitation Science	2
PTRS:7884	Practicum in Research	arr.
PTRS:7895	Advanced Seminar in Rehabilitation Science	arr.
PTRS:7900	Rehabilitation Research Capstone Project	arr.
PTRS:7927	Research in Rehabilitation Science	arr.
PTRS:7930	Critical Thinking in Neuro-Mechanical Systems	arr.
PTRS:7931	Critical Thinking in Pain	arr.
PTRS:7932	Critical Thinking in Biomechanics and Human Performance Assessment	arr.
PTRS:7933	Critical Thinking in Activity-Based Plasticity	arr.
PTRS:7934	Critical Thinking in Neural Plasticity	arr.
PTRS:7935	Critical Thinking in Movement Science	arr.

PTRS:7936	Critical Thinking in Cardiovascular Physiology	arr.
PTRS:7990	Thesis: Rehabilitation Science	arr.

Specialty Content Requirement

Students must complete at least 9 s.h. in their scientific specialty area. Students may choose courses from the following list, but other courses suited to a student's background knowledge and interest area are considered.

Course #	Title	Hours
Anatomy and Cell Biology		
ACB:8401	Advanced Human Anatomy	arr.
Epidemiology		
EPID:6900	Design of Intervention and Clinical Trials	3
Health and Human Physiology		
HHP:6130	Advanced Skeletal Muscle Physiology	1,3
HHP:6150	Advanced Clinical Exercise Physiology	1,3
HHP:6300	Motor Control Seminar	1
HHP:6410	Advanced Integrative Physiology of Exercise	1,3
HHP:6460	Advanced Cardiovascular Physiology	1,3
HHP:6470	Advanced Physiology of Aging	1,3
Neuroscience		
NSCI:7235/ NEUR:7235	Neurobiology of Disease	3
Nursing		
NURS:3460	Professional Role II: Research	3
Occupational and Environmental Health		
OEH:4310	Occupational Ergonomics: Principles	3
Pharmacology		
PCOL:5137	Neurotransmitters	1
PCOL:6207	Ion Channel Pharmacology	1
PCOL:6250	Advanced Problem Solving in Pharmacological Sciences	1
Physical Therapy		
PTRS:5210	Kinesiology and Pathomechanics	4
PTRS:5206	Cardiopulmonary Therapeutics	3
PTRS:6224	Activity-Based Neural and Musculoskeletal Plasticity in Health Care	4
PTRS:6250	Critical Inquiry I: Evidence-Based Practice	2
PTRS:6251	Critical Inquiry II: Rehabilitation Research	2
PTRS:6253	Functional Neuroanatomy	arr.
PTRS:7875	Analysis of Activity-Based Neural and Musculoskeletal Plasticity	3
PTRS:7899	Introduction to Pain: Overview of Theories, Concepts, and Mechanisms	1
PTRS:7901	Clinical Correlates of Pain: Syndromes and Management	1
PTRS:7903	Rehabilitation Management of Pain	1

Graduate Education

Graduate education prepares students with advanced knowledge and skills in specialized fields. At the University of Iowa, the Graduate College advocates for student-centered graduate education and supports equitable application of rules and policies across graduate programs.

Academics

University of Iowa graduate credentials are regulated by policies and requirements found in the Graduate College Manual of Rules and Regulations. This includes minimum grade-point average (GPA) requirements for academic standing and degree conferral. The Graduate College sets the minimum requirement. Individual graduate programs may establish higher GPA requirements.

Admissions

Graduate student applicants must meet admission requirements for both the Graduate College and the program to which they have applied. University of Iowa graduate admission requirements are published by the Graduate College and on the Graduate Admissions website.

Financial Support

Graduate students might be eligible for financial support. Several contingencies apply, including degree program and award type, satisfactory progress toward degree, satisfactory completion of all duties related to an appointment, and availability of funding. Graduate students should inquire directly with their program for more information about funding availability. The Graduate Student Employment Standards govern the employment relationship between the University of Iowa and all graduate teaching and research assistants in all matters except wages, which are covered by an existing collective bargaining agreement or the conditions of an applicable federal grant.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations. They should have a cumulative grade-point average of at least 3.00 and scores at or above the 50th percentile for each section of the Graduate Record Exam (GRE) General Test. A minimum of two years of clinical experience may be considered highly desirable, depending on the research interest area.

Application materials must include a complete Graduate College application form, test scores, transcripts, three letters of recommendation, and a statement of purpose.

Personal interviews are required of all applicants selected for consideration by the admissions committee. On-campus interviews are preferred, but telephone interviews may be substituted when necessary. Approximately 20 students are enrolled in the PhD program each year.

Career Advancement

The PhD program trains students to obtain positions as professors and researchers in rehabilitation science.

Academic Plans

Sample Plan of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Physical Rehabilitation Science, PhD

Course	Title	Hours
Academic Career		
Any Semester		
72 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a]		
	Hours	**0**
First Year		
Any Semester		
STAT:4143 or BIOS:4120	Introduction to Statistical Methods or Introduction to Biostatistics	3
	Hours	**3**
Fall		
BMED:7270	Scholarly Integrity/Responsible Conduct of Research I [b]	0
PTRS:7812	Biomedical Instrumentation and Measurement [c]	3
PTRS:7820	Seminar in Rehabilitation Science [d]	1
Research course [e]		3
Research course [e]		2
	Hours	**9**
Spring		
BMED:7271	Scholarly Integrity/Responsible Conduct of Research II [b]	0
BIOS:5120	Regression Modeling and ANOVA in the Health Sciences	3
PTRS:7820	Seminar in Rehabilitation Science [d]	1
Research course [e]		3
	Hours	**7**
Second Year		
Any Semester		
PSQF:7385	Teaching and Learning in Higher Education	3
PTRS:7880	Teaching Practicum	1
	Hours	**4**
Fall		
Research course [e]		3
Specialty Content course [f]		3
Specialty Content course [f]		3
	Hours	**9**
Spring		
Research course [e]		3
Specialty Content course [f]		3
	Hours	**6**
Third Year		
Any Semester		
Comprehensive Exam		
	Hours	**0**
Fall		
Research course [e]		3
Research course [e]		3
Research course [e]		3
Research course [e]		3
	Hours	**12**
Spring		
Research course [e]		3
Research course [e]		3
Research course [e]		3
Research course [e]		1
	Hours	**10**
Fourth Year		
Fall		
PTRS:7990	Thesis: Rehabilitation Science [e]	6
	Hours	**6**
Spring		
PTRS:7990	Thesis: Rehabilitation Science [e]	6
Final Exam [g]		
	Hours	**6**
	Total Hours	**72**

a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.

b Online, web-based training on the Collaborative Institutional Training Initiative (CITI) must be completed before enrolling in BMED:7270 and BMED:7271.

c Typically offered during fall semesters of even years.

d Take twice for a total of 2 s.h.

e At least 27 s.h. of research content courses are required, but students typically take more to fulfill degree requirements. The capstone course PTRS:7900 is recommended but not required for students who enter the program with a master's or doctoral-level degree; however, it is required for students who enter with a bachelor's degree. Work with faculty advisor to determine appropriate research coursework and sequence.

f Students must complete at least 9 s.h. in their scientific specialty area; work with faculty advisor to determine appropriate graduate coursework and sequence.

g Dissertation defense.