

Rehabilitation Science

Degree Offered:	Ph.D.
Director:	William R. Reed, DC, PhD
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Website:	http://www.uab.edu/rsphd

Program Information

The Ph.D. in Rehabilitation Science program is an interdisciplinary program offered by [The Department of Occupational Therapy](#) and [The Department of Physical Therapy](#) at the School of Health Professions. This exciting program is designed to prepare graduates to become:

- Academicians, scholars, scientists and researchers in education, health care, industry, and government institutions.
- Consultants to individuals, communities, and governments.

The goal of the Program is to prepare graduates to have the following skills:

- Design and implement research studies that will contribute to the knowledge base of rehabilitation science.
- Design and deliver educational courses related to rehabilitation.
- Translate innovative rehabilitation research findings into practice so as to advance the field of rehabilitation science.

The aim of this program is to prepare candidates to become leaders in teaching and research within the field of Rehabilitation Science. However, *this is not a clinical training program*. Applicants planning to become occupational therapists or physical therapists should visit the following websites to pursue training in those two professions: www.uab.edu/ot or www.uab.edu/pt.

Application Procedure

Received by:
UAB Graduate School
LHL G03
1720 2nd Avenue South
Birmingham, Alabama 35294-0013

- Complete and submit online [Graduate School application](#).
- Submit application fee payment
- Request one (1) official transcript to be mailed by the issuing institution to the UAB Graduate School
- Three (3) letters of recommendation are required. Please ask the individuals from whom you requested references to submit them online via the recommendation email request they receive. Electronic submission is the preferred method. However, if your referees prefer to mail a recommendation letter, it should be mailed to the address of the department or program to which you are applying.

Minimum Requirements for Admission

- Note that each application will be reviewed by the Admission Committee to identify individuals with strong commitment and aptitude to perform research related to Rehabilitation Science,

along with strong academic preparation and professional-leadership potential.

- Undergraduate or graduate degree in occupational or physical therapy, engineering, exercise science, neuroscience, medicine, nursing, or other health related professions.
- Recommended minimum GPA 3.0/4.0 in all previous coursework
- Three strong evaluation references, with at least one from a research lab mentor, and one from an academic source.
- With the written essay, provide evidence of appropriate goals of study, professional growth and commitment to research, with special emphasis on interest in research that is being conducted at UAB.
- Interview with faculty that shows passion and commitment to research and professional growth in Rehabilitation Science.

Contact Information

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PhD Program in Rehabilitation Science
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Doctor of Philosophy in Rehabilitation Science

Requirements	Hours
Required major courses	33
RHB 780 Principles of Rehabilitation Science: Movement Science	
RHB 782 Principles of Rehabilitation Science: Occupation Science	
RHB 783 Research Design/Measurement in Rehab Sci	
RHB 784 Res Design/Measure Rehab Sc II	
RHB 785 Principles of Behavior Change in Rehabilitation Science	
RHB 789 Rehab Science Seminar	
RHB 795 Rehabilitation Science Research Proposal	
GRD 717 Principles of Scientific Integrity	
EPR 609 Statistical Methods and Research in Education: Intermediate	
EPR 710 Computer Applications and Advanced Statistical Methods	
Electives ¹	18-21
Research	24
RHB 798 Non Dissertation Research	
RHB 799 Dissertation Research	
Dissertation	
Total Hours	75-78

¹ Electives are determined in conjunction with the graduate committee based on the student's academic background, courses taken in a focus area, and proposed dissertation question. Courses are specifically selected to develop the expertise needed to complete the dissertation requirements.

There are four types of electives: concentration electives, academic teaching or writing electives, research methods, and statistical analysis. All electives should be directly relevant to the student's dissertation and/or field of expertise.

Possible elective courses offered at UAB:

Requirements **Hours**

Concentration Electives: These are electives in a specific disease, population, or content area of interest

RHB 590	Quantitative Biomechanics of Injury and Rehabilitation
RHB 704	Analysis of Human Movement for Rehabilitation Science
RHB 706	Neuroscience I for Rehabilitation Science
RHB 707	Neuroscience II for Rehabilitation Science
RHB 720	Pathology and Pharmacology for Movement Disorders I for Rehabilitation Science
RHB 721	Pathology and Pharmacology for Movement Disorders II for Rehabilitation Science
RHB 730	Essentials of Human Physiology for Rehabilitation Science
RHB 731	Human Performance Physiology for Rehabilitation Science
HRP 705	Teaching in Health Professions
NTR 650	Body Composition and Energy Metabolism
OT 677	Foundations in Low Vision Rehabilitation I

Academic Writing Electives: These are electives that focus on developing writing skills for scientific publications and/or preparation

RECM 729	Writing a Journal Article in 12 Weeks
KIN 694	Special Projects in Kinesiology (Scientific Writing in Health and Exercise Physiology)

Research Methods Electives: These are electives in a specific research methodology or study design areas of interest

HPO 787	Empirical Methods for Health Research
HPO 692	Health Equity and Inclusion in Public Health Programs and Policies
NRM 773	Qualitative Research Methods

Statistical Methodology Electives: These are electives in a specific statistical or data analysis methodology

HPO 721	Clinical Decision Making and Cost Effectiveness Analysis
EPI 710	Analysis of Case Control Studies
CS 610	Database Systems
BST 623	General Linear Models
BST 665	Survival Analysis
EPR 792	Mixed Methods Approaches to Educational Research

Typical Program of Study

First Year

First Term	Hours	Second Term	Hours	Summer Term	Hours
RHB 780	3	RHB 784	3	RHB 782	3
RHB 783	3	RHB 785	3	RHB 789	1
RHB 789	1	RHB 789	1	GRD 717	3
EPR 609	3	RHB 795	3	EPR 710	3
				Qualifier Exam	
	10		10		10

Second Year

First Term	Hours	Second Term	Hours	Summer Term	Hours
RHB 789	1	RHB 789	1	RHB 746	1
RHB 798	3	RHB 798	3	RHB 789	1
HRP 705	3	RHB 770	3	RHB 798	3
Elective Coursework	3	Elective Coursework	3	Elective Coursework	5
				Dissertation Proposal	
	10		10		10

Third Year

First Term	Hours	Second Term	Hours	Summer Term	Hours
RHB 799	6-9	RHB 799	6-9	RHB 799	6-9
Elective Coursework	1-3				
	7-12		6-9		6-9

Fourth Year

First Term	Hours	Second Term	Hours
RHB 799	6-9	RHB 799	6-9
		Dissertation Defense	
	6-9		6-9

Total credit hours: 91-108

Note: The degree plan will vary by the student's academic discipline and preparation upon entry to the PhD in Rehabilitation Science Program.

Courses

RHB 500. Introduction to Rehabilitation Science. 3 Hours.

Encapsulating science from the level of the cell and body structure to the person, family, community and society level, rehabilitation science serves as a foundation and the body of knowledge by which individuals may develop and evaluate current and emerging approaches to enhancing enablement and minimizing disability.

RHB 575. Special Topics in Rehabilitation Science. 1-4 Hour.

Exploration of current topics in Rehabilitation Sciences.

RHB 590. Quantitative Biomechanics of Injury and Rehabilitation. 3 Hours.

Material, mechanical, electrophysiological and energetic principles of human movement. Comparison of non-impaired versus impaired systems in relation to injury/disability.

RHB 704. Analysis of Human Movement for Rehabilitation Science. 3 Hours.

Study of human movement through an examination of the movement patterns during common motor skills (e.g., walking). The kinematics and kinetics related to movement across the lifespan.

Prerequisites: RHB 780 [Min Grade: C]

RHB 706. Neuroscience I for Rehabilitation Science. 3 Hours.

Study of the structure and function of the human nervous system with emphasis on sensory/motor function in Rehabilitation Science.

Prerequisites: RHB 780 [Min Grade: C]

RHB 707. Neuroscience II for Rehabilitation Science. 3 Hours.

Study of the theories of motor control and motor learning will serve as a foundation for the understanding of how the central nervous system is organized in relation to human movement. Assists students in integrating knowledge with human anatomy, physiology, and biomechanics in relation to the production of human movement.

Prerequisites: RHB 780 [Min Grade: C]

RHB 720. Pathology and Pharmacology for Movement Disorders I for Rehabilitation Science. 3 Hours.

Overview of clinical medicine related to management of movement disorders. Basic principles of pathology and pharmacology. Exploration of physical therapy/rehabilitation implications associated with medical and surgical management of disorders with emphasis on clinical manifestations, management, and physical therapy/rehabilitation implications.

Prerequisites: RHB 780 [Min Grade: C]

RHB 721. Pathology and Pharmacology for Movement Disorders II for Rehabilitation Science. 3 Hours.

Exploration of medical and surgical disorders with emphasis on clinical manifestations, management, and rehabilitation implications.

Prerequisites: RHB 780 [Min Grade: C] and RHB 720 [Min Grade: C]

RHB 730. Essentials of Human Physiology for Rehabilitation Science. 3 Hours.

Fundamental principles and concepts of human physiology are covered regarding cell physiology, the cardiovascular, endocrine, gastrointestinal, pulmonary, renal, and skeletal muscle systems. Both cellular and systemic issues are addressed with an emphasis on a mechanistic and integrative approach to understanding function.

Prerequisites: RHB 780 [Min Grade: C]

RHB 731. Human Performance Physiology for Rehabilitation Science. 3 Hours.

Course provides fundamental knowledge about the adaptability of human physiological systems in meeting a range of exercise demands. Areas covered include energy transfer during rest and exercise, physiologic and performance adaptations, exercise prescription for healthy adults, and body composition. Research evidence regarding how exercise and physical activity impact health, wellness, and disease is included as related to rehabilitation science.

Prerequisites: RHB 780 [Min Grade: C]

RHB 740. Teaching Practicum. 1-3 Hour.

Individually designed, directed teaching experience in focus area appropriate to student's background, needs, and goals under guidance of faculty preceptor.

Prerequisites: RHB 780 [Min Grade: C] and RHB 781 [Min Grade: C] and RHB 782 [Min Grade: C] and RHB 783 [Min Grade: C] and RHB 784 [Min Grade: C]

RHB 746. Rehabilitation Science Journal Club. 1 Hour.

Student-led, facilitated discussion of current, impactful published research in rehabilitation science. Interaction with scientists and clinicians from multiple disciplines contributing to the rehabilitation science.

RHB 770. Systematic Review Protocol Development. 3 Hours.

Provides knowledge of formalized methods to plan and execute a systematic review on a topic of choice.

RHB 775. Special Topics in Rehabilitation Sciences. 1-4 Hour.

Exploration of current issues in Rehabilitation Sciences.

RHB 780. Principles of Rehabilitation Science: Movement Science. 3 Hours.

Interdisciplinary discussion of concepts, theories, principles, and research literature underlying the understanding of neural control, biomechanics, motor learning, and motor development and how purposeful and functional body movements are accomplished under a variety of health conditions and disease processes.

RHB 781. Principles of Rehabilitation Science: Exercise Science. 3 Hours.

Interdisciplinary discussion of concepts, theories, principles, and research literature underlying the understanding of cardiac and pulmonary physiology, exercise physiology, and health behaviors and how important activities are accomplished under a variety of health conditions and disease processes.

RHB 782. Principles of Rehabilitation Science: Occupation Science. 3 Hours.

Interdisciplinary discussion of concepts, theories, principles, and research literature underlying the understanding of occupation science and how work and play activities are accomplished under a variety of health conditions and disease processes.

RHB 783. Research Design/Measurement in Rehab Sci. 3 Hours.

A detailed overview of research design and methodologies used in rehabilitation science, including quantitative and qualitative methods.

RHB 784. Res Design/Measure Rehab Sc II. 3 Hours.

A detailed overview of research design and methodologies used in rehabilitation science, including quantitative and qualitative methods. A continuation of Research Design and Measurement in Rehabilitation Science I.

RHB 785. Principles of Behavior Change in Rehabilitation Science. 3 Hours.

Scientific and theoretical principles underlying health behavior change in the context of rehabilitation science; health behavior from an ecological perspective; seminal behavior change theories; key elements required for design, implementation, and analysis of rigorous health behavior change research.

RHB 789. Rehab Science Seminar. 1-2 Hour.

Varied discussion of rehabilitation science topics to help students explore research questions in preparation for their dissertation.

RHB 795. Rehabilitation Science Research Proposal. 3 Hours.

Instruction and support for writing a Rehabilitation Science research proposal. Topics to be covered include but are not limited to: developing the Specific Aims, Abstract, Narrative, Significance, Innovation, and Research Strategy sections; creating figures and tables; planning and writing the training and career development sections; developing the biosketch; understanding other grant sections and the scientific review process.

Prerequisites: RHB 780 [Min Grade: C]

RHB 798. Non Dissertation Research. 1-9 Hour.

Development of research proposal.

RHB 799. Dissertation Research. 1-9 Hour.

Dissertation Research.

Prerequisites: GAC Z