

# Rehabilitation Sciences

## College of Health Sciences

The Divisions of Athletic Training, Communication Sciences and Disorders, and Physical Therapy at UK, in cooperation with Occupational Therapy program at Eastern Kentucky University, and Communication Sciences and Disorders programs at Murray State University and Western Kentucky University, offer a Doctor of Philosophy Degree in Rehabilitation Sciences. This program has a unique interdisciplinary, inter-institutional emphasis for rehabilitation professionals in the disciplines of athletic training, communication disorders, occupational therapy, and physical therapy.

The focus of the program is to prepare academic leaders in Rehabilitation Sciences through interdisciplinary academic, clinical, and research experiences. The program prepares scholars and scientists in rehabilitation science to teach at the university level, direct discipline specific educational programs, work in rehabilitation services field and collaborate with other professionals on issues related to rehabilitation and health.

### Admission Requirements

Individuals applying for admission must be eligible for state licensure or national certification in Athletic Training, Communication Disorders, Occupational Therapy, or Physical Therapy. They must also have a professional or post-professional master's degree and submit GRE scores, transcripts from all universities attended, a comprehensive resume, and three letters of recommendation. Those with basic science graduate degrees and interests are also welcomed to apply and will be considered equally for admission. International students must submit an official TOEFL score. Program application materials can be obtained from [www.mc.uky.edu/rehabsciences](http://www.mc.uky.edu/rehabsciences). An interview is strongly encouraged and may be scheduled after your application has been reviewed by RHB faculty.

### Areas of Specialization

Students in the Program have the unique opportunity to study with professionals from all four disciplines and take courses from faculty from all four institutions. Distance technologies are used to deliver some portions of the program, thus making it more widely accessible.

Physical therapists, occupational therapists, speech-language pathologists and audiologists, and athletic trainers who have a master's degree and are eligible for certification or licensure in one of the disciplines may apply for admission to the program. Students can choose from several areas of concentration to focus their research interests. Individuals not eligible for licensure will be considered on an exceptional basis.

### Degree Requirements

Each candidate for the Ph.D. must pass a written and oral Qualifying Examination, submit and defend a dissertation based on original and significant research and satisfy the Graduate School requirements. The courses expected of all students in the doctoral degree curriculum include the following:

### Core Courses

RHB 701 Rehabilitation Theories and Application through the Life Span (3)

RHB 712 Critical Appraisal of Research in Rehabilitation Sciences (3)

RHB 720 Research in Rehabilitation Sciences (3)

RHB 770 Professional Seminar in Rehabilitation Sciences (6)

## **Research Methodologies**

(minimum 6-9 Credits) Examples below:

STA 671 Regression and Correlation (2)  
STA 672 Design and Analysis of Experiments (2)  
CPH630 Biostatistics II(3)  
CPH 664 Design and Analysis of Clinical Trials(3)  
EDS 633 Single Subject Research Design(3)

Professional Discipline Specific Coursework\*\*(min of 12 credits)  
RHB 787 Teaching Apprenticeship in Rehabilitation Sciences (2) (minimum)

## **Research Apprenticeship**

At least two research apprenticeships are required for students (6-9c credits) - individually designed based on student's past research experience.

RHB 789 Research Apprenticeship In Rehabilitation Sciences (1-4)  
RHB 767 Residence Credit for the Doctoral Degree (4)  
(2 Credits per semester for a maximum of 5 years)

For Additional Information, contact:  
Esther Dupont-Versteegden, Ph.D.  
[eedupo2@uky.edu](mailto:eedupo2@uky.edu)  
Rehabilitation Sciences Doctoral Program  
859.218.0592

Occupational Therapy courses are available through our partnership with the Department of Occupational Therapy at Eastern Kentucky University.

## **Course Descriptions**

RHB 625 MUSCLE FORUM. (1)

Muscle Forum is a course that will allow students to develop critical evaluatory skills for seminars and grant writing in the field of Muscle Biology. Prereq: Students need to be enrolled in the Rehabilitation Sciences doctoral program, one of the graduate programs of the Integrative Biomedical Sciences, or with permission of the course director. (Same as PGY 625.)

#RHB 680 LABORATORY TECHNIQUES IN REHABILITATION SCIENCE. (3)

The purpose the course "Laboratory Techniques in Rehabilitation Science" is to introduce students to the processes and methodology behind data acquisition and processing of commonly used systems in the fields of musculoskeletal health and rehabilitation science, with an emphasis on equipment and procedures used in the Sports Medicine Research Institute. The study of rehabilitation science involves the use and understanding of many different methodologies and data sources. The main aim of this course is to provide students with background and practical knowledge on how data, such as analog signals (i.e. force transducers, accelerometers, movement data), neuromuscular characteristics, and clinical measures are acquired, the processes used to process and refine such data, and how to interpret the results in a rehabilitation science application. Students will be exposed to common methods used to collect data in rehabilitation science through classroom and laboratory experiences. Prereq: Admittance to RHB PhD program or graduate student status with consent from instructor.

RHB 701 REHABILITATION THEORIES AND APPLICATION THROUGH THE LIFE SPAN. (3)

Explores the theories common to all the rehabilitation therapies (PT, CD, OT) and that form a foundation for the rehabilitation sciences. Included are theories specific to rehabilitation, attachment, adaptation and resilience, cognition, motor learning, empowerment, loss and grief, psycho-immunology, and the societal responses to stigmatized groups. Theories are applied to rehabilitation practice and research design across the life span. Prereq: Admission to the Rehabilitation Sciences Ph.D. program or consent of the instructor.

**RHB 710 NEUROPLASTICITY IN REHABILITATION. (3)**

This course will examine the neurological principles utilized by each of the rehabilitation disciplines (PT, OT, SLP) in the context of current research data and determine whether these principles hold up to scientific examination. The format of this course will utilize formal lectures on current theories of neuroplasticity and class discussion on current literature in each of these areas. Case studies will be utilized to apply current theories to practical application within each of the listed disciplines. Prereq: Course in Neuroanatomy, Admission to the Rehabilitation Sciences Doctoral Program or by consent of the instructor.

**RHB 712 PHARMACOLOGY IN REHABILITATION. (2-3)**

This course will provide the basic science background necessary to understand the effects of medications on patients treated in the rehabilitation setting and the their influence on treatment. Topics will include mechanisms of drug action, side effects, and how age and disease alter those mechanisms. The course will also address newly developing drug treatment strategies, including those in clinical trials. Students may either take the course for two credits or complete an additional advanced project for 3 credits, as outlined in the syllabus. The advanced project will enable the more interested student to pursue a topic in greater depth. Prereq: Admission to the Rehabilitation Sciences Doctoral Program or consent of instructor.

**RHB 714 CRITICAL APPRAISAL OF RESEARCH IN REHABILITATION SCIENCES. (3)**

This course will introduce the student to critical appraisal of all forms of research in the Rehabilitation Sciences. The purpose of this course is to further develop the student's competence in carrying out and evaluating research. The student will develop the skills necessary to find, critically evaluate, and synthesize the available research.

**RHB 720 RESEARCH IN THE REHABILITATION SCIENCES.(3)**

The purpose of this course is to provide a critical review of the current practices in research methodologies in rehabilitation and investigate the consequences of selecting various research methodologies and analytic strategies.

**RHB 744 ADVANCED TOPICS IN MOTOR DEVELOPMENT. (3)**

Investigation of motor development, control, and learning and teaching strategies in pediatrics. In depth analysis of movement for specific function tasks and motor dysfunction with identification of both primary and secondary designated problem areas in children with neuro-developmental concerns. Prereq: Admission to the Rehabilitation Sciences Ph.D. program or consent of the instructor.

**RHB 749 DISSERTATION RESEARCH IN REHABILITATION SCIENCES. (0)**

Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Admission to the Rehabilitation Sciences Ph.D. program.

**RHB 767 DISSERTATION RESIDENCY CREDIT. (2)**

Residency credit for dissertation research after the qualifying examination. Students may register for this course in the semester of the qualifying examination. A minimum of two semesters are required as well as continuous enrollment (Fall and Spring) until the dissertation is completed and defended.

**RHB 769 RESIDENCE CREDIT FOR THE DOCTORAL DEGREE. (0-9)**

May be repeated to a maximum of 18 credits. Prereq: Admission to the Rehabilitation Sciences Ph.D. program.

**RHB 770 PROFESSIONAL SEMINAR IN REHABILITATION SCIENCES. (0-3)**

A study of selected topics related to leadership issues in the Rehabilitation Sciences with emphasis on recent research and theory related to higher education and to the communication disorders, occupational therapy, physical therapy, and athletic training disciplines. Sample topics include research methods and current topics, interdisciplinary issues, health systems, grant writing, teaching and learning in higher education, and the culture of colleges and universities. Prereq: Admission to the Rehabilitation Sciences Ph.D. program or consent of the instructor.

**RHB 787 TEACHING APPRENTICESHIP IN REHABILITATION SCIENCES. (1-4)**

Study of instructional methods in higher education including development of syllabi, class presentations, and examinations. Emphasis on classroom dynamics and innovative techniques for instruction. May be repeated to a maximum of four credits. Prereq: Admission to the Rehabilitation Sciences Ph.D. program in communication disorders or physical therapy or consent of the instructor.

**RHB 788 INDEPENDENT STUDY IN REHABILITATION SCIENCES. (1-3)**

Independent study for graduate students interested in specific interdisciplinary topics in Rehabilitation Sciences. May be repeated to a maximum of six credits. Prereq: Admission to the Rehabilitation Sciences Ph.D. program or consent of the instructor.

**RHB 789 RESEARCH APPRENTICESHIP IN REHABILITATION SCIENCES. (1-9)**

In-depth study of a discipline specific topic under the direction of a member of the graduate faculty. Emphasis on scientific method including development of a research question, methodology, data collection and analysis. Students will complete a supervised research project during the course. Variable credit hours repeatable to a maximum of 21 credit hours. Prereq: Admission to the Rehabilitation Sciences Ph.D. program or consent of the instructor.