

# REHABILITATION SCIENCE

## Program Overview

The goal of rehabilitation science is to generate new knowledge to improve function and participation of people with or at risk of disability across the lifespan, to strengthen rehabilitation workforce and health systems, and to create equity and opportunities for people with disabilities in society. The doctoral and master's programs in Rehabilitation Science at Queen's University stress the multidisciplinary contribution of many health professions and disciplines to rehabilitation. The program attracts students from varied backgrounds including occupational therapy, physical therapy, speech-language pathology, kinesiology, psychology, social work, arts & humanities, nursing, education, epidemiology, law, engineering and others.

Students engage with the broad scope of rehabilitation science and are provided with opportunities to develop research skills and knowledge. Their research addresses the needs of people across the spectrum of ability, promotes improved high-quality rehabilitation, enhanced and health services and a more equitable society.

## Financial Assistance

Graduate students are expected to apply to the external granting agencies for fellowships available to them. Thereafter they will be considered, without further application, for Queen's Fellowships. Graduate students may receive support from grants held by members of faculty, or from departmental funds. Teaching assistantships are available to suitably qualified candidates.

## Admission Requirements

Admission to the M.Sc. program is limited and is normally based, at a minimum, on an upper second class standing (B+) in a degree equivalent to an honours undergraduate degree in a discipline related to rehabilitation science (e.g. physical therapy, occupational therapy, kinesiology, sociology, psychology, life sciences, engineering, etc.) and awarded by a recognized university.

Admission to the doctoral program is limited and is normally based on high academic standing after the completion of a Master's degree, normally in one of three patterns:

1. a research Master's degree in rehabilitation science or a related field;
2. a professional Master's degree in Occupational Therapy, Physical Therapy, or other rehabilitation-related profession; or

3. a bachelor's degree in Occupational Therapy or Physical Therapy followed by a research master's in any field.

## Faculty

### Rehabilitation Science

#### Vice-Dean (Health Sciences) and Director

Nixon, S.

#### Associate Director, Research and Post-Professional Programs

Norman, K.E.

#### Professor

Brouwer, B., Cramm, H., Finlayson, M.<sup>1</sup>, McColl, M. A.<sup>3</sup>, Nixon, S., Norman, K.E., Pedlar, D.

#### Associate Professor

Aldersey, H.<sup>4</sup>, Auais, M., Batorowicz, B.<sup>2</sup>, DePaul, V., Deshpande, N., Donnelly, C., Fayed, N., Ghahari, S., Kessler, D.<sup>2</sup>, Lawson, T., Mathur, S., Miller, J.<sup>2</sup>, Pinder, S.

#### Assistant Professor

Bobbette, N., Fakolade, A., Fucile, S., Jull, J.

#### Professor Emeritus

Culham, E., Krupa, T., Lysaght, R., Olney, S.J., Paterson, M.

#### Cross-Appointed

Bona, M., Bougie, O., Davies, C., Dhavernas, C., Muscedere, J., Pukall, C., Snelgrove-Clarke, E., Stockley, D., Stuart, H., Woo, K.

<sup>1</sup> Administrative leave July 1, 2023 – June 30, 2024

<sup>2</sup> Academic leave July 1, 2023 – June 30, 2024

<sup>3</sup> Academic leave January 1 to June 30, 2024

<sup>4</sup> Canada Research Chair (Tier 2)

## Programs of Study

Applicants for both the Master's and Doctoral programs in Rehabilitation Science are accepted under the general regulations of the School of Graduate Studies.

- Rehabilitation Science - Doctor of Philosophy (<https://queensu-ca-public.courseleaf.com/graduate-studies/programs-study/rehabilitation-science/rehabilitation-science-phd/>)
- Rehabilitation Science - Master of Science (<https://queensu-ca-public.courseleaf.com/graduate-studies/programs-study/rehabilitation-science/rehabilitation-science-ms/>)



## Courses

Courses listed below represent the range of RHBS graduate rehabilitation science course offerings in the School of Rehabilitation Therapy. Not all courses will be offered in each academic year and the current calendar should be consulted for the term and instructor.

RHBS 810, 815, 822, 825, 824, 826 and 921 are 1.5 credit unit courses. All other courses are 3.0 credit units except RHBS 899 and 999, which are 6.0 credit units.

### **RHBS 801/901 Motor Performance in Rehabilitation**

This seminar course examines theories of motor control and current literature relating to the neuromuscular, physiological, and biomechanical aspects of volitional movement. Motor performance outcomes will be discussed within the context of physical rehabilitation and motor control. Three term hours. Limited enrollment.

### **RHBS 803 Academic and Professional Development for M.Sc. Students**

Credit is based upon attendance and participation in designated events within the program and related programs. Events are designed to develop students' academic and professional skills to facilitate completion of their master's thesis and prepare for future career paths. (Pass/Fail).

### **RHBS 804/904 Rehabilitation Science**

This seminar course addresses foundational theory and contemporary issues in rehabilitation science, including research strategies, principles of measurement and ethical issues. Informed by the International Classification of Functioning, Disability and Health, the course highlights policy and research about functioning in people who may use rehabilitation services. Three-term hours; limited enrollment. Fall. B. Batorowicz

### **RHBS 810 Fundamentals of Disability**

This lecture/seminar module provides an introduction to disability. The module examines the concepts of disability in a contemporary Canadian and international context. Topics include: definitions, models, history; classification and types of disability, disability prevalence and statistics; disability across the lifespan, including community and social participation; disability around the world. (1.5 credit units). Please check department for availability.

### **RHBS 815 Community Based Rehabilitation**

This module prepares students to design, implement and evaluate community based rehabilitation (CBR) initiatives for and with persons with disabilities globally. The historical development of CBR and its philosophical and theoretical underpinnings will be discussed, as will the current

international development landscape. (1.5 credit units).

Contact department for availability.

EXCLUSIONS: RHBS 877, RHBS 977

### **RHBS 822 Knowledge Translation Foundations**

This module examines the foundations of knowledge translation (KT) in health care. Topics include terms, definitions, frameworks and approaches to KT; specific issues related to KT in rehabilitation science; barrier and facilitators to KT; KT interventions and evaluations, and developing KT plans. (1.5 credit units). Contact department for availability.

### **RHBS 824: Quantitative Research Design**

This course provides students with fundamental knowledge of major quantitative research designs used in rehabilitation & health research, as well as practical skills in selecting and applying an appropriate research design to examine a research question. The course provides knowledge related to formation of sound research questions to direct inquiry, observational and experimental/quasi-experimental designs, choice of appropriate analytical approaches, and conduct of systematic reviews. 1.5-credit course. Winter. Limited enrollment. TBD

PREREQUISITE: RHBS 833 or RHBS 933 or equivalent.

### **RHBS 825 Regression Analysis**

Students will gain fundamental knowledge of regression analyses as used in rehabilitation/health research, and practical skills to conduct such analyses. Topics include correlation, basic linear regression, multivariate linear regression, and logistic regression. SPSS, statistical software will be used throughout the course. (1.5 credit units).

PREREQUISITE: undergraduate statistics.

EXCLUSION: RHBS 834/RHBS 934

### **RHBS 826 Validation and Reliability Testing**

Students will gain fundamental knowledge of validity and reliability testing and practical skills to conduct such analyses. Topics on reliability testing include correlation, coefficients of variation, Intraclass correlation coefficients, Bland Altman Analysis, and Generalizability Theory. SPSS statistical software will be used. (1.5 credit units). Contact department for availability. Spring 2023. TBD

PREREQUISITE: undergraduate statistics

EXCLUSION: RHBS 834/ RHBS 934

### **RHBS 833/933 Research Methods**

This course emphasizes the intersection between theoretical background and rationale, and research design for quantitative and qualitative methods used in rehabilitation science research. Topics include development of the research question and problem statement, rationale, appropriate literature review, and research design. Fall. C. Donnelly and V. DePaul

**RHBS 834/934 Statistics**

A seminar course which will acquaint the student with the concepts and principles of quantitative statistical analysis including parametric and nonparametric methods. Students may present various topics throughout the course and critically evaluate research in their area of study. Three term hours; lectures/seminars. Limited enrollment.  
PREREQUISITE: An undergraduate level statistics course

**RHBS 840 Motor Performance in Rehabilitation**

This module examines theories of motor control and current literature relating to the neuromuscular, physiological and biochemical aspects of volitional movement. Motor performance outcomes will be discussed within the context of physical rehabilitation and motor control. (1.0 credit units).  
EXCLUSIONS: RHBS 801, RHBS 901

**RHBS 874/974 Studies in Aging**

A lecture/seminar course, which examines the neurophysiological, cardiorespiratory, musculoskeletal, cognitive and psychoemotional aspects of aging and their significance in both motor performance and disability and wellness in the community. Three term hours; limited enrollment.

**RHBS 876/976 Independent Study**

A study under the guidance of a faculty member in a subject area related to the faculty member's area of expertise or special interest that is not covered within existing courses. The study work must not directly overlap with the student's thesis work. Normally this course will take the form of a closely supervised reading program, but may also include supervised laboratory work and/or specialized clinical experience. A course outline should be developed in consultation with the student's supervisor and the proposed instructor. The course outline must be approved by the Chair of the Graduate Program in Rehabilitation Science prior to the student registering in this course. Fall, winter, or summer.

**RHBS 877/977 Community -Based Rehabilitation**

This course prepares students to design, develop, implement and evaluate community based rehabilitation (CBR) programs for and with persons with disabilities internationally. Topics addressed include CBR history, concepts, and frameworks; relevant policy and global development agreements; education and training strategies in CBR; emancipatory and participatory approaches to research and evaluation; and the World Health Organization's CBR matrix and its application to CBR practice, research and education.

**RHBS 899 Master's Thesis Research****RHBS 903 Academic and Professional Development for Ph.D. Students**

Credit is based upon attendance and participation in designated events within the program and related programs. Events are designed to develop students' academic and professional skills to facilitate completion of their doctoral dissertation and prepare for future career paths. (Pass/Fail).

**RHBS 921 Grant Writing for Rehabilitation Scientists**

This seminar course is designed to assist trainees who are working on their research/thesis proposal to hone their grantsmanship skills. Students will work with their research proposal to prepare it for submission to a major granting council and will present it to the class for review and critique. (1.5 credit units). Limited enrollment. Contact department for availability.  
PREREQUISITE: [RHBS 904 and RHBS 933] or permission of the instructor.

**RHBS 932 Qualitative Research Methods in Health Studies**

This course prepares student to evaluate and undertake health related research using qualitative approaches. Topics addressed include the philosophical foundations of qualitative research, research design and rigor, data collection, analysis and interpretation and ethical challenges. Three term hours; lectures/seminars. Limited enrollment. Winter. TBD

**RHBS 999 Ph.D. Thesis Research**