Admission Requirements for the PhD in Health and Rehabilitation Sciences

The concentration aims to train rehabilitation research clinicians and scientists who will focus on the understanding of movement control through multiple types of measurement. This concentration will examine body function/structure and activity in the able-bodied and in people with movement impairments to potentially enhance physical and psychosocial functioning. Additionally, research will focus on increasing participation among the functionally impaired, thereby impacting the quality of life of people with disabilities. This pursuit of scientific inquiry for RMS crosses all levels of the ICF model. Special emphasis will be placed on the measurement of movement, including kinematics (position), kinetics (forces and moments) and EMG (muscle activity); muscle physiology and function (muscle physiological cross-sectional area), and energetics (metabolic and mechanical). These body and structure measurements will be studied around the neuro-musculoskeletal basis of movement, given central nervous system mechanisms and the neurophysiology and neuroscience mechanisms underlying movement disorders. The RMS concentration will be supported by theories of motor control, motor learning, and biomechanics. Areas of study may include balance and vestibular-ocular disorders; athletic performance; diabetes and wound healing physiology; body composition and obesity; physical interventions for cancer, and movement deficits in other disorders such as Parkinson’s Disease, Multiple Sclerosis, Huntington’s Disease, stroke and spinal cord injury. The RMS concentration uses quantitative methods in the measurement of body structure and function such as what is available in the Rehabilitation Research and Movement Performance Lab. In addition, students may experience studies in the Locomotion Learning Lab and the Shah Spinal Cord Injury Basic Science Lab. Students will also be required to relate these measurements to functional activities and societal participation and learn how these discoveries can not only improve clinical practice, but also inform health policy.

Application

This program has been suspended and is not currently accepting new applications.

Program Concentrations:

Behavioral and Community Health (BCH)

The BCH concentration is uniquely crafted to train students in leadership and community-based participation, in the domains of healthcare and health policy. This program is designed to meet the aspirations of students seeking to create change in the intersection of healthcare, policy, and the social experience. Fundamentally participatory in nature, this PhD track expects students not only to become proficient in research and theory, but also to acquire the tools and experience to apply theory to practice. This program establishes the necessary intellectual framework to understand community-based leadership, and then provides the opportunities to exercise it, professionally and personally. The BCH track and is designed for social scientists, behavioral scientists, community health researchers, clinicians, community organizers, and health policy specialists. This track will develop proficiency in various research methods, both qualitative and quantitative in nature. Particular emphasis will be given to translating theory to practice and understanding the applied nature of policy measures. The BCH track will provide students with proficiency in policy evaluation, community intervention, leadership development, community engagement, and community-based participatory research. Students in the BCH track will understand the intersection of health, policy, and society, and the shared relationship among them. In the shifting healthcare environment, attention will be given to marginalized groups, like immigrants, those of racial minority, those with disability, those of lower socioeconomic status, and others. It is expected that graduates of the BCH track will be trained to be experts in community leadership, policy analysis, grass roots mobilization, and community health.

Disability Studies (DS)

The DS concentration focuses on multiple social and environmental factors that influence the experience of chronic conditions and functional impairments. These factors range from architectural barriers to social discrimination and have a profound influence on access to education, employment, recreation, and participation in other community activities across the life cycle. Disability Studies draws from philosophy, history, anthropology, sociology, law, political sciences, economics, occupational sciences, bioethics, and many other fields. The goal of this concentration is to train researchers from clinical and non-clinical backgrounds to use quantitative, qualitative and community participatory methodologies to operationalize critical theories and focus on the practical and policy implications of disability with the intent of improving quality of life and community access to health services for the disabled. In addition to a critical consideration of ICF conceptualizations of health, activity, and participation, the DS concentration will: (1) examine the role of power, social identity, and status as related to disability (2) consider the role of social and regional inequalities, and (3) assess desired changes at the organizational, community, national, and international levels that might positively affect the disabled.

Only two Ph.D. programs in Disability Studies exist nationally. Neither program is embedded in a Health and Rehabilitation Sciences Ph.D program, but the connections strengthen this program of study. Additionally, a growing number of DS programs are currently being developed. Graduating students from this Ph.D. program will find employment in academic departments, public policy and administrative positions, with nongovernmental organizations and in rehabilitation centers engaged in research.

Rehabilitation and Movement Sciences (RMS)

The concentration aims to train rehabilitation research clinicians and scientists who will focus on the understanding of movement control through multiple types of measurement. This concentration will examine body function/structure and activity in the able-bodied and in people with movement impairments to potentially enhance physical and psychosocial functioning. Additionally, research will focus on increasing participation among the functionally impaired, thereby impacting the quality of life of people with disabilities. This pursuit of scientific inquiry for RMS crosses all levels of the ICF model. Special emphasis will be placed on the measurement of movement, including kinematics (position), kinetics (forces and moments) and EMG (muscle activity); muscle physiology and function (muscle physiological cross-sectional area), and energetics (metabolic and mechanical). These body and structure measurements will be studied around the neuro-musculoskeletal basis of movement, given central nervous system mechanisms and the neurophysiology and neuroscience mechanisms underlying movement disorders. The RMS concentration will be supported by theories of motor control, motor learning, and biomechanics. Areas of study may include balance and vestibular-ocular disorders; athletic performance; diabetes and wound healing physiology; body composition and obesity; physical interventions for cancer, and movement deficits in other disorders such as Parkinson’s Disease, Multiple Sclerosis, Huntington’s Disease, stroke and spinal cord injury. The RMS concentration uses quantitative methods in the measurement of body structure and function such as what is available in the Rehabilitation Research and Movement Performance Lab. In addition, students may experience studies in the Locomotion Learning Lab and the Shah Spinal Cord Injury Basic Science Lab. Students will also be required to relate these measurements to functional activities and societal participation and learn how these discoveries can not only improve clinical practice, but also inform health policy.

Admission Requirements for the PhD in Health and Rehabilitation Sciences
The point of entry into the Ph.D. program is based on a “Mentor Match” of students with faculty from the SHTM. This match ensures a highly individualized program of study for the student based on existing research projects of the faculty. The Mentor will ensure that every student is exposed to related research from the three other branches of research in order to provide a successful translational research experience. Mentors and their collaborators, who are conducting research in other branches of this translational continuum, will expand the research experience of the students. At the same time, these translational research opportunities may facilitate the discovery of relationships between the student’s research and that of other faculty researchers. The Admissions Committee of the program will assign the “Mentor Match” based on requests from the students as well as evaluations of their interests and strengths in relationship to the available faculty.

In addition to the minimum Graduate School requirements, the following are required:

A. All applicants must hold a bachelor’s degree prior to the application deadline.
B. Preference given to applicants a grade point average of 3.0 or better on a 4.0 scale and also for applicants with a master’s degree.
C. Have taken the Graduate Record Examination (GRE) or equivalent graduate entrance exam within the past five years or have completed an American accredited graduate program prior to applying.
D. Strong letters of recommendation (three references).
E. Achieved an acceptable score on the TOEFL for international applicants.
F. Applicant must submit two official transcripts from all post-secondary schools.
G. One essay, no more than 1000 words on the candidate’s research interests and how those interests match to research at Stony Brook University’s School of Health Technology and Management.

The Admissions Committee will consider all factors including grades, standardized test scores, recommendation letters, essays, prior training, professional experience, and match in research interest. The goal of the committee is to select applicants who have the academic capability, personal qualities, and commitment to provide future value to society through a career in interdisciplinary health sciences research.

Important Note:

Health and Rehabilitation Sciences has an application deadline in early January each year (please check website for exact date). Please note that our application deadline may be earlier than the typical University Graduate School deadline of January 15. All applicants must submit by the deadline to be considered.

Apply online. Applicants must complete a Stony Brook University Graduate School application via the “Apply Yourself” electronic application.

Facilities of Health and Rehabilitation Sciences

Rehabilitation Research and Movement Performance (RRAMP) Laboratory at the Research and Development Park is a one-of-a-kind 7,000-square-foot laboratory dedicated to helping individuals with disabilities, assessing athletic performance and aiding recovery after disease or injury thought the use of a state-of-the art motion analysis system. This system is coupled with four in-ground force plates, electromyography and an eye tracking system. There is a large computer lab for graduate students, which will be the site for student work for the PhD. Program in Health and Rehabilitation Sciences program. The laboratory houses talented faculty from the School of Health Technology and Management whose research explores ways to improve the lives of individuals with spinal cord injury, traumatic brain injury, stroke, Huntington’s disease and multiple sclerosis. Parkinson’s disease, amputations, orthopedic disorders, cerebral palsy, pediatric cancer, geriatric disorders, cardiovascular disease, and obesity. The RRAMP lab also includes a locomotor training center, a motor control / motor learning lab to probe motor recovery, a musculoskeletal lab currently using ultrasound diagnostic equipment to assess and train muscle control of the spine and pelvic floor, prosthetic and orthotic lab, a trans cranial magnetic stimulation and a body composition lab to explore physical changes of muscle, fat, and bone. Plans are being made to add a community fitness and wellness center for people with disabilities; this building will be housed adjacent to the RRAMP lab. The RRAMP lab is operated by faculty and staff from the School of Health Technology and Management. Located at the facility are the research director, assistant to the director, and research professors.

The PhD in Health and Rehabilitation Sciences program is housed in the RRAMP Lab (Rehabilitation Research and Movement Performance) Lab. The RRAMP lab office suite is located in the Research and Support Services Building. In addition to office space, there are four research laboratories within the secured portion of the suite. Within the building, but outside the suite proper, are a conference room, staff/student lounge, disabled patient restroom and shower, and laundry facility.

The curriculum consists of 78 credits requiring a minimum of four years of full-time effort. Although the direction of the students’ research will be highly individualized, all students must complete 21 credits of core courses, 27 credits of concentration courses (of which 12 are required), and 30 credits of dissertation research. In addition, there will be a no-credit doctoral seminar every semester for discussion and advancement of doctoral projects by professor and peers.

Core Course Requirements:
HAX 600 Doctoral Seminar
HAX 602: Frameworks, Models and Classification Systems in Health and Rehabilitation Sciences
HAX 653: Research Design and Methods
SOC 501: Multivariate Stats for Social Science
Behavioral and Community Health Concentration Required Courses
HAX 647: Health Care Systems/Policy Analysis
HAX 640: Community Health and Community Based Participatory Research
HAX 642: Participation and Health in Pediatric and Educational Settings
HAX 641: Community Mental Health

Disability Studies Concentration Required Courses
HAX 667/EGL 592 Disability Studies Language, Narrative and Rhetoric
HAX 668 Emerging Topics in Disability Studies
HAX 665 Disability Participation and Justice
HAX 664 Conceptual Foundations of Disability Studies

Rehabilitation and Movement Science Concentration Required Courses
HAX 620 Rehabilitation and Disability
HAX 635 Biomechanics of the Musculoskeletal System and Movement I
HAX 631: Electro/Neurophysiology: Topics for Rehabilitation Research
HAX 634 Motor Learning and Motor Control

Other Requirements:
All students are to be enrolled as full time students (12 credits/semester for year 1 and 9 credits/semester for subsequent years)
All courses taken outside the department for application to the Ph.D. degree requirement are subject to approval of the student's advisor and the graduate program director. The advisor may pose additional course requirements.
A maximum of 6 graduate credits from other programs, including those of other institutions, may be transferred toward the Ph.D. degree. Credits used to obtain any prior degrees are not eligible for transfer. Requests of credits must be approved by the graduate program director. Each student is required to complete a teaching practicum before graduation. Planning for this requirement is to be made with the student's primary advisor/mentor. Students who are currently educators or have experience teaching in their field of study may have the teaching practicum waived, which must be approved by the graduate program director.

Written Qualifying Examination
The written qualifying exams are offered every year after completion of the first 2 academic years, usually in the summer before the 3rd year. The written qualifying exam consists of 2 parts, Part I covers the required core courses and Part II consists of the required concentration course for each students' concentration. Upon passing the qualifying exams the Ph.D. student advances to candidacy.

Dissertation
Students chose their dissertation topics in consultation with his/her advisors as soon as possible. Dissertation research is a training experience for the candidate who, under the supervision of the primary advisor/mentor, carries out independent original work of significance. The student, in collaboration with his/her advisor must select a dissertation examining committee as soon as possible after the qualifying exams. The committee must include a Chair who must be within the department of Health and Rehabilitation Sciences, and a minimum of 3 other members of whom one is typically the primary advisor/mentor, and the remaining members are from within and outside Stony Brook University. The committee must be approved by the graduate program director upon the recommendation of the primary advisor. The dissertation examining committee provides a means of exposing the candidate to ideas, methodologies, and helps guide the research process. Each year the committee meets to review the progress of the student.

Dissertation Proposal
The student is required to submit a written dissertation proposal and present it an oral examination conducted by the dissertation examining committee. The written dissertation proposal must be distributed to the committee members at least 2 weeks before the oral examination. This examination probes the student's ability and examines progress and direction, methodology and feasibility, which can be based on pilot data. The student will be examined based on knowledge and background on the topic, the aims/hypotheses or research questions, the methodology and any preliminary data.

Dissertation Defense
At the completion of the dissertation, approval of the dissertation involves a formal oral defense which is open to all interested members of the University community. The candidate must fill out a doctoral dissertation defense form (available on the graduate school webpage) and must include the dissertation abstract and all relevant information. The form should be submitted to the graduate program director at least 4 weeks before the defense. This form is then submitted to the Dean of the Graduate School who is responsible for advertising the event to the University community. Copies of the dissertation are distributed at least 2 weeks before the defense date. One copy is kept in the department for examination by the faculty. The final approval of the dissertation must be a majority vote by the dissertation examining committee.

Faculty information can be found at http://healthtechnology.stonybrookmedicine.edu/programs/hrs/facultyresearch

NOTE: The course descriptions for this program can be found in the corresponding program PDF or at COURSE SEARCH.