Health and Rehabilitation Sciences

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Website: http://healthtechnology.stonybrookmedicine.edu/programs/hrs.

Program Description

Multidisciplinary Graduate Program in Health and Rehabilitation Sciences

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.

The Division of Rehabilitation Sciences, within the Health Sciences Center, offers a multidisciplinary graduate program leading to the Ph.D. degree. The doctoral program in Health and Rehabilitation Sciences (HRS) uniquely positions graduates to carry out independent research making contributions in a variety of complex health issues that span the branches of translational research. It allows students to personalize their studies in one of three concentrations: 1) Behavioral and Community Health; 2) Disability Studies; and 3) Rehabilitation and Movements Sciences.

The PhD track in Behavioral and Community Health (BCH) 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.

The concentration in Disability Studies (DS) 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.

The Rehabilitation and Movement Sciences (RMS) 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 the disabled 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. 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. However, 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.
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, electrymyography 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 alb 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.

Requirements information can be found at: http://healthtechnology.stonybrookmedicine.edu/programs/hrs/admissions/requirements
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.