

**Goal 1: Establish a PhD degree program in Speech and Hearing Sciences (Encompasses recruitment of new tenure track faculty to expand research and increase laboratory and office space for Speech and Hearing Sciences faculty.)**

**Degree Description**

The Department of Speech & Hearing Sciences' Doctor of Philosophy (PhD) program at Washington State University will be designed for students interested in basic or applied research in the disciplines of hearing, speech, or language science. Department faculty will mentor PhD candidates interested in the normal and disordered processes of speech, language, swallowing, hearing, and related areas. The PhD degree program will emphasize preparing candidates for success in an academic research setting. In addition, students will be prepared as scholars for future teaching at the university level and work in clinical or settings.

The Department's doctoral education will be based on a mentorship model with strong faculty support. Prospective applicants will be encouraged to identify specific areas of concentration and identify a potential faculty mentor(s) in advance of applying. Academic programs will be planned on an individual basis in consultation with the student's faculty mentor and advisory committee.

Faculty are nationally and internationally recognized in their areas of expertise, including autism, auditory processing, neurodevelopmental disorders, motor speech disorders, swallowing, facial rehabilitation, and speech and language development.

The proposed PhD program offers interdisciplinary opportunities for researchers and faculty across the Elson S. Floyd College of Medicine with interests in neurodevelopmental disorders and neurodegenerative disease. The addition of this PhD program will expand and enhance the College's research portfolio and advance the University Drive to 25.

**Market Demand**

Only four (of 41) Speech and Hearing Sciences PhD programs are housed in medical schools in the U.S. (Vanderbilt, Washington University, Harvard, and University of Nevada, Reno). In Washington, only the University of Washington currently offers the PhD in Speech and Hearing Sciences (part of the Natural Sciences division of the College of Arts and Sciences). We are in a position at WSU to join elite ranks that will attract renown faculty, students, and scholars. Demand for trained, doctoral-level research personnel is at an all-time high nationally and internationally. The American Speech-Language Hearing Association (ASHA) projects almost 500 full time faculty openings in speech and hearing sciences over the 5-year period 2018-2023. Of the nearly 200 faculty searches conducted for research doctoral faculty in 2016-2017, 53 (25%) went unfilled (CSD Education Survey, 2016-2017). This market demand does not include the additional demand in other sectors, including industry, private practice, and related health care sectors.

**Goal 2: Increase opportunities for interdisciplinary research in autism**

The growing prevalence of autism spectrum disorder (ASD) in the United States and abroad impacts all of us, with estimates of socioeconomic burden at \$137 billion in the United States and measurable impact on families and caregivers. The World Health Organization places ASD as a top health-care priority, with a goal of producing effective diagnostic practices and treatments to mediate impact. ASD is a complex neurological disorder which can co-occur with other neurodevelopmental disorders. It also is associated with chronic health conditions which affect a child's physical development and mental health, resulting in the need for interventions across the lifespan. The department of Speech and Hearing Sciences seeks to pursue interdisciplinary research opportunities aimed to identify ASD earlier and to improve access to appropriate healthcare and intervention. Given the complexity of this disorder and varying degrees of impact, basic and applied research is needed. A strong clinical research team supports interdisciplinary research programs seeking to stratify the disorder to better understand the interplay among genetics, environment, intervention, and clinical features.

Faculty in Speech and Hearing Sciences are developing research programs with an emphasis in early behavioral predictors of ASD and later language development, and, using noninvasive clinical screening tools, to identify biomarkers of atypical neurodevelopment associated with ASD. Infrastructure to support taking existing and new research programs to the next stage in implementation and securing external funding sources is needed to guide this work. Efforts to grow interdisciplinary research opportunities will include identifying potential collaborators within ESFCOM and across colleges. These collaborations will include colleagues possessing expertise in biomedical sciences, biometrics, neuroscience, and psychology, while also engaging medical school teaching faculty and community partners. Interdisciplinary collaboration both internal and external, will be sought to pursue federal and private funding, and to build corporate sponsorship for launching innovative studies addressing complex problems. Students from various disciplines and backgrounds will be invited to support these research efforts and dissemination of findings will be conducted through publication in premier journals and at national and international conferences. By increasing opportunities for interdisciplinary research, the Department of Speech and Hearing Sciences supports WSU's vision as a premier research institution with world recognition and aspires to offer strong interdisciplinary research programs in ASD and neurodevelopmental disorders.

**Goal 3: Develop a neurodevelopmental curricular track within the Master of Science degree program with an initial emphasis in autism spectrum disorder to increase interprofessional clinical training to address pressing public health issues**

The goal of this innovative curricular track is to increase interprofessional clinical training to build the capacity of graduate students to provide comprehensive services for individuals with autism spectrum disorder (ASD) and their families. Individuals with ASD often have complex, inter-related health needs. One hallmark deficit associated with ASD is a significant delay in the development of language and communication, requiring the specialized skills of speech-language pathologists to promote speech and language acquisition. The speech-language pathologist performs a critical role on the interprofessional team serving individuals with ASD, highlighting the need for specialized training in assessing and treating individuals with neurodevelopmental disorders. This specialized curricular track will build upon the required coursework for the Master of Science degree in Speech and Hearing Sciences. It will include specific coursework, additional clinical opportunities, and interprofessional interactions and collaborations with families and community partners. It will be tailored to increase the knowledge-base in evidence-based practices for treating ASD and to further develop clinical skills. The track will recruit and retain promising graduate students with potential for future work as a member of an interprofessional team in a clinical capacity. It may also attract students interested in pursuing a PhD in speech and hearing sciences through a clinical research program focused on neurodevelopmental disorders.