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Program in Audiology and Communication Sciences
Washington University School of Medicine

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*Professional Education Programs
2003-2004*



CENTRAL INSTITUTE FOR THE DEAF



Department of Speech and Hearing

The mission of Central Institute for the Deaf is to serve people with hearing loss worldwide so they can communicate effectively and live to their fullest potential.

FROM THE DEPARTMENT CHAIR

Thank you for your interest in pursuing a graduate education in the Washington University Department of Speech and Hearing. Please take the time to read this bulletin carefully. It will provide you with useful information and answer many of your questions about our programs. If you still have questions, please do not hesitate to get in touch with us. A member of our staff will be pleased to assist you.

The Department offers a world-class education with up-to-date academic, research and clinical programs for master's and doctoral students. We are very proud of the many outstanding faculty members, educators, researchers and clinicians associated with the Department, and we are committed to training leaders of the future in audiology, education of the hearing impaired and speech and hearing sciences. There is a need in these areas now, and the need will continue to grow into the new millennium.

The Department has some unique features that may be attractive to you. It is operated by CID—Central Institute for the Deaf, located on the Washington University Medical School campus. CID is the only institution in the country that combines an oral school for hearing-impaired children, a community speech and hearing clinic serving adults and children, a world-class research department and graduate programs in all three areas affiliated with one of the nation's leading universities. The faculty and staff are proud of our rich heritage, our excellent programs and the hundreds of

graduates who are enriching the lives of others throughout the world.

This bulletin is intended to give you a summary of our programs and to provide information about the University and the St. Louis environment. But pictures and words can tell only a part of the story. If you are seriously considering studying with us, I encourage you to contact the professional education coordinator and arrange a personal visit. A visit will allow you to tour our facilities and, more importantly, to learn about our greatest asset: the faculty and staff who are committed to the mission of CID.

We are also happy to make other arrangements for you to learn about our programs. If you'd like to know what it's "really" like to be a student here, we'll arrange to put you in touch with a current or recently-graduated student. If you would like to know more about CID but are unable to visit, we can send you a short video that describes all of CID's programs and services. Our annual report to the community is also available. Just contact the professional education office to have one sent to you.

Again, I thank you for your interest. The decision about a graduate career is a pivotal one, and will undoubtedly be a major factor in shaping your future. The faculty and staff at CID are committed to making your graduate education experience an outstanding one.



If our programs sound exciting to you, I invite you to apply. Whatever your choice, I wish you the best in your scholarly endeavors.

Sincerely,

William W. Clark, Ph.D.
Professor of Physiological Acoustics
Chairman



CENTRAL INSTITUTE
FOR THE DEAF

 **Washington**
WASHINGTON UNIVERSITY IN ST. LOUIS

Department of Speech and Hearing



CID is the only organization combining oral education for deaf children, scientific research, clinical services and graduate degree programs in all three areas.



Washington University and CID

In partnership, CID and Washington University of St. Louis offer master's and doctoral programs in audiology, education of the hearing impaired and speech and hearing sciences. We take pride in the strength of our programs, our commitment to graduate education and in the exceptional stature of our faculty in the profession.

Since its founding in 1914, CID has been training teachers of the deaf. In 1931, CID and Washington University agreed to affiliate to formally offer a bachelor's degree program in education of the hearing impaired. Since that time, as the University's Department of Speech and Hearing, CID has expanded its programs to include master's and

doctoral degrees in audiology, deaf education and speech and hearing sciences. The bachelor's degree is no longer offered.

For nearly 90 years, CID has been a leader in training professionals in fields related to speech and hearing, and we are currently ranked among the top 10 graduate programs in audiology by *U.S. News & World Report*. CID graduate students have come from 31 countries and 45 U.S. states. Our alumni are leaders at schools, clinics and research organizations around the world.

Central to activities at CID is our mission to serve people with hearing loss. As part of this mission, we also operate an oral school for hearing-impaired children, scientific research laboratories and clinic and community



services for both adults and children. Our academic, research and service communities interact and operate together within a new \$32 million campus that provides an outstanding array of facilities, opportunities and resources for graduate students.

CID's new, state-of-the-art campus is a part of the Washington University Medical Center, which includes Barnes-Jewish-Children's Hospital and the Washington University School of Medicine, located just across the street from the CID campus entrance.

Professional Education Academic Programs

The Department of Speech and Hearing of Washington University is governed and operated by CID—Central Institute for the Deaf, a private institution in St. Louis, Missouri that combines an oral school for deaf children, an audiology clinic, community services, scientific research and professional education. CID's mission is to help hearing-impaired children and adults worldwide so they can communicate effectively and live to their fullest potential.

Administratively, the Department is within the University's Graduate School of Arts and Sciences. This booklet describes the Department's academic programs, which offer the following academic degrees:



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- MASTER OF SCIENCE IN SPEECH AND HEARING with a Specialization in Audiology
- MASTER OF SCIENCE IN SPEECH AND HEARING with a Specialization in Education of the Hearing Impaired
- MASTER OF ARTS IN SPEECH AND HEARING SCIENCES
- DOCTOR OF PHILOSOPHY IN SPEECH AND HEARING SCIENCES

AUDIOLOGY

New technology and an aging population have created an unprecedented demand for skilled audiologists. Over the next decade, audiology will be one of the fastest growing occupations in the U.S.* Cochlear implants, digital hearing aids, aural rehabilitation programs and newborn infant screening legislation have brought about a revolution in ways professionals are helping people who are deaf and hard of hearing. It is an exciting time to enter the field of audiology and CID's program is recognized internationally as one of the best academic and practical training centers.

Degree candidates in the Program in Audiology proceed from classroom-based instruction and observation to progressively more specialized coursework and practicum experiences. During the first year, students complete introductory coursework and begin observation and clinical practicum. An independent study is required in lieu of a master's thesis, and is completed under the guidance of one or more faculty members. Graduates of the program are fully eligible for state licensure and ASHA certification.

Students begin hands-on experience from almost the first day and are given a wide variety of opportunities to put their knowledge into practice. Each practicum experience is one-on-one with a fully certified and licensed audiologist. Practicum is available with both children and adults in a wide variety of settings. Students gain clinical practice with standard testing, special diagnostic testing, newborn hearing screenings, intraoperative monitoring, cochlear implants, hearing aids, hearing-impaired children in the CID school, aural rehabilitation groups for adults and more.

CID maintains a relatively small, personalized program, offering the advantages of a small college campus plus a broad range of courses, facilities and extracurricular activities available at Washington University and in the St. Louis area. Our faculty includes several well-known leaders in the field of audiology and speech and hearing sciences, including the authors of widely-used textbooks in audiology and aural rehabilitation. Central to all activities at CID is our mission to serve people with hearing loss worldwide so they can communicate effectively and live to their fullest potential.

**The CID Program in
Audiology is once
again rated among the
nation's Top 10
Audiology Programs by
*U.S. News & World
Report for 2002.***

*According to the U.S. Bureau of Labor Statistics 2002-2003 *Occupational Outlook Handbook*, the number of audiology positions is expected to climb 45% by 2010.



"I love it that CID faculty are not only well-known in the field, they're also working professionals, not just teaching what they learned 10 years ago. Also, the opportunity to get to know the children at the CID school, day by day, is something you just can't find in any other program."

— Julie Mullen, Graduate Student in Audiology



COUNCIL ON ACADEMIC ACCREDITATION
• ACCREDITED •
AUDIOLOGY

The Program in Audiology is accredited by the Council on Academic Accreditation (CAA) of the American Speech-Language-Hearing Association (ASHA). All clinical supervisors have a Certificate of Clinical Competence (CCC) from ASHA.

Practicum Sites

Alexian Brothers Hospital
Barnes-Jewish Hospital
Cardinal Glennon Children's Hospital
Center for Hearing and Balance Disorders
Children's Hospital
CID Hearing Central
Chesterfield, Missouri
Fairview Heights, Illinois
St. Louis, Missouri
CID School
Deaconess Health System
Ear, Nose and Throat Institute
ENT Associates
Jefferson Memorial Hospital
Midwest Otologic Group
St. Anthony's Hospital
St. Elizabeth Medical Center
St. John's Hospital
St. Louis Hearing and Speech Center
St. Louis Special School District
St. Louis University Health Sciences Center
St. Mary's Health Center
Scott Air Force Base
SONUS
Washington University School of Medicine

EDUCATION OF THE HEARING IMPAIRED

The field of deaf education is one that is both challenging and genuinely rewarding. CID's graduate program focuses on a comprehensive approach to preparing teachers to develop the knowledge and skills needed to help hearing-impaired children learn to listen and talk. Students from all backgrounds study the scientific, educational and practical foundations necessary for providing the highest-quality education for hearing-impaired children — from

the first sounds and words children learn to speak to putting together sentences and conversational discourse. Students first learn about and later participate in this process, from the first diagnosis and intervention, through family-centered counseling to the educational experience of the child. Students also learn about the many assistive devices available for use by students, including digital hearing aids, cochlear implants, FM systems and sound field systems. Student teaching

experiences are available on campus in the CID school, which educates students from birth to approximately 12 years, as well as other public schools and schools for the deaf around the country. Students will learn to work one-on-one with infants and their families in the CID Family Center, as well as to teach preschool, primary and middle school levels in the academic subjects that are taught in settings for typically-hearing children.

CID's graduate program is recognized internationally as one of the best training centers in oral-aural education and it provides a rich educational experience. However, our success is largely determined by the special qualities of the individuals who choose deaf education as a career. We have been fortunate to have trained a great many individuals in our program who possess inner strength, compassion, dedication and patience, and who combine these attributes with their education at CID to become successful teachers and school administrators. Our alumni have gone on to teach in a variety of settings, including special school districts, parent-infant programs, cochlear implant centers and oral schools for hearing-

Students in Education of the Hearing Impaired are given ample opportunities to work with children in the CID school.





“CID emphasizes learning through hands-on experience using the most up-to-date teaching methods. The strong, science-based curriculum and attention to professionalism help people with teaching potential become great teachers.”

— Ellie Rice, Graduate Student in Deaf Education

impaired children, and to head other schools for the deaf. Graduates of the program are eligible for teacher certification in the State of Missouri and for certification by the Council on Education of the Deaf (CED).

Our two-year program is designed for students without a background in deaf education and without experience teaching hearing-impaired children; our one-year program is designed for individuals with this training or experience. Each program requires an independent study in lieu of a master’s thesis, which is completed under the guidance of one or more members of the faculty.

CID maintains a relatively small, personalized program, offering the advantages of a small college campus plus a broad range of courses, facilities and extracurricular activities available at Washington University and in the St. Louis area. CID operates an oral school for hearing-impaired children on campus, which is staffed with experienced educators, audiologists and speech-language pathologists. Central to all activities at CID is our mission to serve people with hearing loss worldwide so they can communicate effectively and live to their fullest potential.

The Program in Education of the Hearing Impaired is accredited by the National Council for Accreditation of Teacher Education (NCATE) as part of the accreditation of the teacher education programs of the Department of Education at Washington University. The CID program is also accredited by the Council for Exceptional Children (CEC) and the Council on Education of the Deaf (CED). CID’s Education of the Hearing Impaired Program and school for hearing-impaired children are accredited by the Missouri Department of Elementary and Secondary Education. The CID school has the distinction of being the only school for hearing-impaired children to receive an award for excellence twice from the U.S. Department of Education.

New technologies have created a high demand for teachers of hearing-impaired children.



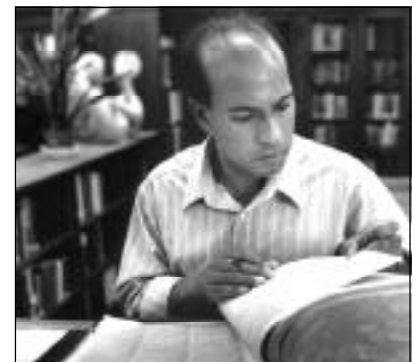
About Our Students

A CID student is not just a "taker of courses," but is a member of a professional community, accepting its responsibilities as well as enjoying its privileges. The men and women in our academic programs are carefully selected on the basis of academic qualifications and professional promise.

CID students come from all over the world. Not only have most of the states of the Union been represented at some time or other, but other countries, including Argentina, Australia, Brazil,

Canada, China, Chile, Colombia, Denmark, El Salvador, England, Finland, France, French Morocco, Ghana, Guatemala, Honduras, India, Ireland, Israel, Jamaica, Japan, Kenya, Korea, Malaysia, Mexico, New Zealand, Nigeria, Norway, Pakistan, Peru, The Philippines, Scotland, South Africa, Spain, Taiwan, Thailand, Venezuela and the city of Hong Kong, have had their share of representation at CID.

Students enrolled in other Washington University departments may take selected courses in the Department of Speech and Hearing. Generally, these selected courses include the regular department coursework and do not include courses that provide clinical or teaching practicum.





Speech and Hearing Sciences students benefit from on-campus clinical facilities and research laboratories dedicated to studying the processes of speech, language and hearing.

SPEECH AND HEARING SCIENCES

To further our understanding of communication processes, scientists study human or animal subjects using a variety of different procedures. Because communication processes are so complex and involve so many diverse subprocesses (e.g., speech, language and hearing in the case of human communication), individuals academically trained in the speech and hearing sciences may be found working in a wide array of diverse, seemingly unrelated environments. Most hold academic positions in universities. Others work for research departments in special institutes. Still others conduct research for commercial companies, such

as telephone and hearing aid manufacturers. Because the profession is research-oriented as opposed to service-oriented, almost all individuals working in this area hold a doctoral degree.

The Doctor of Philosophy (Ph.D.) Program in Speech and Hearing Sciences at CID prepares individuals for careers in research, clinical practice and/or academic teaching at the college level. Typically, students spend approximately three years completing academic coursework requirements and one or two years completing a dissertation. On rare occasions, it is possible to receive a Master of Arts in Speech and Hearing Sciences. This special degree program, shorter than the doctoral program, requires a master's thesis and an oral defense of that thesis.

CID works closely with Washington University to provide a unique and excellent educational and research environment, offering a multitude of possibilities for students to interact with researchers, faculty members, school teachers and administrators, speech, hearing and language clinicians and other graduate students. Students are encouraged to participate in this vibrant community of scholars and have opportunities to participate in numerous seminars and journal clubs at CID, Washington University and the Washington University School of Medicine.

A candidate for an advanced degree in the Program in Speech and Hearing Sciences is expected to have a basic knowledge of aspects of the fields that pertain to speech, language and hearing and to defend this knowledge with written and oral examinations.

The candidate is also expected to demonstrate knowledge and expertise in one of the core areas of specialization.

Like the communication process itself, the Ph.D. program is multidisciplinary and includes core courses relevant to the scientific study of speech, language and hearing. Areas of specialization include:

- Clinical Audiology
- Education of the Hearing Impaired
- Sensory Neuroscience
- Speech and Language Sciences

Curriculum requirements are available upon request for all specialties.



Speech, Hearing and Education Library

CID houses one of the world's outstanding libraries devoted to hearing, language, speech, deafness and related fields. The Speech, Hearing and Education librarian is dedicated to assisting professional education students, staff, colleagues and the public.

Associated with the Library is the Max A. Goldstein Historic Device Collection. This collection shows the evolution of nonelectrical and electrical hearing devices from

their inception centuries ago until the present. The collection includes traditional hearing aids and cochlear implants as well as a variety of rare assistive listening devices. In addition, first editions of rare books on topics relating to hearing, some dating to the 15th century, are housed in the nearby Washington University Bernard Becker Medical Library.

The CID Speech, Hearing and Education Library catalog is online at <http://access8.wustl.edu/ecat4/index.html>. Numerous electronic and print resources of Washington University Libraries are also readily accessible to registered students.

APPLICATION PROCEDURES

For its graduate programs in Audiology, Education of the Hearing Impaired and Speech and Hearing Sciences, CID admits individuals holding a bachelor's degree from a regionally accredited college or university.

Undergraduate Coursework Requirements — Audiology

Applicants from all undergraduate disciplines are eligible for admission and are encouraged to apply. All applicants should complete the following courses at the undergraduate level:

- **Biological Sciences/Physical Sciences** — minimum six semester hours
- **Mathematics** — minimum three semester hours
- **Behavioral/Social Sciences** — minimum six semester hours

Additional coursework may be required of all students if the following content has not been satisfactorily completed at the undergraduate level:

- **Abnormal Language Development**
- **Anatomy and Physiology of Speech**
- **Phonetic Transcription**
- **Introduction to Audiology**
- **Normal Language Development**
- **Normal and Abnormal Speech Development**

Undergraduate Coursework Requirements — Education of the Hearing Impaired

Applicants from all undergraduate disciplines are eligible for admission and are encouraged to apply. For teacher certification purposes, all applicants are encouraged to complete the courses listed below at the undergraduate level. If deficiencies remain, it is possible for students to fulfill one or two during the course of the graduate program.

- **Education and Psychology of the Exceptional Child** — one course*
- **Child and Adolescent Psychology** — one course*
- **English Composition** — two courses
- **Oral Communication** — one course
- **Humanities** — one course each from two of the following fields:
Art, Classics, West and non-West Cultures, Drama, Foreign Language, Literature, Music, Philosophy
- **Mathematics** — one course
- **Biological Science** — one course
- **Physical/Earth Science** — one course
- One lab component from either **Biological** or **Physical Science**
- **American Government** — one course
- **American History** — one course
- One course selected from among the following areas:
Anthropology, Economics, General Psychology, Geography, Sociology

* Each course must be at least two semester hours in length, except those marked with an asterisk, which must be at least three.

Application materials may be submitted anytime, but should be submitted **by February 15th** for full consideration for admission and financial aid. Applicants for the Program in Education of the Hearing Impaired may also apply **by December 15th** for an early admission and financial aid decision. Applications submitted after February 15th are considered late. Late applicants should recognize that they may be at a disadvantage in receiving consideration for admission and financial aid.

CID encourages and gives full consideration to all applicants for admission and financial aid without regard to age, race, color, national origin, handicap, sexual orientation or religion. Admission is granted on the basis on ability, promise of achievement and the number of openings for new students currently available in the program. Admission is highly selective and by no means can be assured for all who have successfully completed the minimal requirements for admission.

To apply, please submit the following:

- A completed graduate application accompanied by a nonrefundable \$40 application fee.
- Official transcripts from all previous college coursework.
- Three letters of recommendation. It is suggested that at least one letter be from a faculty member of the student's undergraduate program.
- Official scores from the general test of the Graduate

a candidate, a student should obtain a score of at least 400 on each section of the exam (for tests taken before October 1, 2002) or at least 400 on the verbal and quantitative sections and 3.5 on the writing assessment section (for tests taken October 1, 2002 and after).

- A tour/interview is strongly encouraged. Please contact us to arrange.

Foreign Students

Students from outside the U.S. can be admitted either as degree candidates or as special students, depending on their qualifications and goals. Interested individuals should follow regular admission policies. Foreign students are required to present certification of financial support before a visa eligibility certificate (Form I-20) can be issued. To demonstrate adequate proficiency in English, students from countries whose first language is not English must take the Test of English as a Foreign Language (TOEFL), administered in most countries by the Educational Testing Service.



FINANCIAL INFORMATION

Tuition and Fees

All applicants must submit a nonrefundable application fee of \$40 upon filing. Tuition for the 2003–2004 academic year is \$14,500, with half of the yearly tuition due at the beginning of each semester. A \$325 deposit is required after a student is accepted for admission to reserve his or her place in the class. All full-time students must also participate in the Washington University student health plan, at a cost of approximately \$500 per year. An outlay of \$900 to \$1,200 for textbooks is usually sufficient to carry the student for the entire program.

Financial Aid

Because CID is a nonprofit organization, tuition fees are set substantially less than the actual cost. For 2003–2004, available financial aid opportunities include **full scholarship support for the Program in Education of the Hearing Impaired**, as well as other CID scholarships and work/study opportunities. These opportunities are provided by CID through endowments, private contributions and other sources. Typically, 95–100% of our graduate students receive financial aid directly from CID.

To be considered for financial aid, students must indicate interest on the CID application form and complete the CID financial aid application. Federal financial aid application materials are available through the Washington University Graduate School of Arts and Sciences at 314.935.6831.



Information on Campus Safety and Security in Compliance with Title II of the Federal Crime Awareness and Campus Security Act of 1990. Each year, Washington University publishes a brochure, *Safety and Security*, that details what to do and whom to contact in an emergency and includes the federally required annual security report. For a copy, contact the Washington University Policy Department, Campus Box 1038, One Brookings Drive, St. Louis, MO 63130-4899, 314.935.9011 or Pam_Green@aismail.wustl.edu, or visit <http://police.wustl.edu>.



Brookings Hall, a Collegiate Gothic building reminiscent of Windsor Castle, is the hallmark of Washington University. It is the main entrance to the Hilltop Campus on the west side of Forest Park.

WASHINGTON UNIVERSITY

Washington University is a medium-sized, independent university serving more than 13,000 students yearly. Founded in 1853, the University gives balanced attention to undergraduate, graduate and professional study as well as to research. The University is dedicated to challenging faculty and students alike to seek new knowledge and greater understanding of an ever-changing, multicultural world.

Washington University is regularly among the nation's top-ranked universities as judged by the amount of federally funded research, the proportion of faculty members serving as advisors to government agencies and policy-making bodies, the volume of faculty publications and creative works, and the number of faculty members holding positions on editorial boards of professional journals. Twenty-two Nobel Laureates have been associated with Washington University.

The University offers more than 90 programs, including eight graduate and professional schools. Due to its size, diversity and quality, CID graduate students have excellent opportunities to supplement their academic studies through access to a broad range of courses and programs.

Washington University's state-of-the-art research and teaching resources are complemented by its rich cultural offerings, including a diverse program of speakers and programs in The Assembly Series and myriad world-class performances at the on-campus Edison Theatre. Washington University students are active in dance, theater, athletics and a wide variety of campus organizations.

Washington University is a member of the Association of American Universities, the Association of Urban Universities, the Association of American Colleges, the Association of Graduate Schools in the United States, the Missouri College Union, the North Central Association of Colleges and Secondary Schools, and Division III of the National Collegiate Athletic Association.

Washington University has two campuses, abutting opposite ends of Forest Park, the site of the 1904 World's Fair. The Hilltop Campus, on the west end of the park, houses undergraduate programs, administrative offices and certain graduate programs and professional schools such as Law, Social Work and Business Administration.

On the east side of Forest Park is the 59-acre Medical Campus, which includes the School of Medicine and associated hospitals and institutes of the Washington University Medical Center. The Washington University Department of Speech and Hearing is based on the campus of CID—Central Institute for the Deaf, located in the Medical Center. CID and the Medical Center are undergoing combined major capital renovations totaling more than \$250 million.

CID graduate students are entitled to use the facilities of Washington University—both on the Medical Campus and on the Hilltop Campus, located about two miles from CID on the west side of Forest Park. Facilities include the Bernard Becker Medical Library and computer laboratory, as well as the Olin Library, The Writing Center, the Athletic Complex and Student Health and Counseling Service.

ST. LOUIS

Known as the "Gateway to the West," St. Louis was initially a trading post in 1764, and has evolved into a metropolitan area of more than 2.6 million people. From the centrally-located CID campus, one can travel minutes by car, bus or MetroLink to many cultural and historical offerings, including Powell Hall, home of the renowned St. Louis Symphony Orchestra, the Muny Opera, the Fox Theater and numerous other live concert and theater venues, the Jefferson National Expansion Memorial (the Gateway Arch), the St. Louis Science Center, Art Museum and Zoo, the Missouri Botanical Garden, Laumeier Sculpture Park and the City Museum.

A diverse selection of restaurants, entertainment and nightlife is offered in places such as Laclede's Landing, the University City Loop, South Grand, the Washington Avenue artist loft district, the nearby Central West End and elsewhere in the city. Professional sporting events include major league home games of the baseball's National League Cardinals, the National Football League's high-flying Rams and St. Louis Blues ice hockey. The Savvis Center and the UMB Bank Pavilion offer major concert venues. Riverboat casinos and riverboat cruises are also favorite destinations for evening and weekend leisure.

In recent years, St. Louis has experienced a building renaissance, including a major convention center expansion and the Edward Jones Dome, used for NFL football and other purposes. Quality, affordable residential, recreational and shopping opportunities are available in the city as well as in the suburbs on both sides of the Mississippi River. Major highways and the expanding MetroLink system make it possible to get to almost anywhere quickly, whether it be to Union Station, a shopping complex in the heart of the city, or to the Galleria, a popular suburban mall. Regional biking and hiking opportunities include the River Road and the Katy Trail.

The St. Louis skyline looking east from west Market Street.



Central West End

The CID campus is located within the Washington University medical campus in the Central West End community of St. Louis. Within walking distance are shops, galleries, dance clubs, restaurants and late-night gathering places serving myriad interests and tastes.

Because the campus adjoins Forest Park, facilities for tennis, walking, golf, cycling, handball, racquetball, in-line skating and even sailing are at the student's easy disposal. The park, one of the largest municipal parks in America, also contains an outstanding Zoo, an excellent Art Museum and the St. Louis Science Center, one of the largest and most highly acclaimed such centers in the world.

FACULTY

Professors

William W. Clark

Chairman of the Department of Speech and Hearing
Professor of Physiological Acoustics

Ph.D., University of Michigan

CID: Director of Professional Education

Professional and research interests: effects of noise on hearing, industrial hearing conservation, animal psychophysics, cochlear biomechanics, effects of aging on the auditory system

Recent publications: "Toxicology of noise and ultrasound" and articles on the hearing levels of industrial workers

Richard A. Baird

Research Professor of Vestibular Physiology

Ph.D., University of California-Berkeley

CID: Director of Research

S. Richard Silverman Chair

Professional and research interests: functional organization of the central and peripheral vestibular apparatus; development, repair and regeneration of vertebrate hair cells; information processing in hair cell systems

Recent publications: coauthor, "Myosin I is located at tip link anchors in adapting and non-adapting vestibular hair bundles" and "Hair cell recovery in mitotically blocked cultures of the bullfrog saccule"

Barbara A. Bohne

Research Professor of

Anatomy and Physiology

Ph.D., Washington University

CID: Senior Research Scientist

Professional and research interests: degeneration and repair in the inner ear using mutant mice with inner-ear anomalies and noise-damaged chinchillas and mice as models

Recent publications: coauthor, "Time course of nerve-fiber regeneration in the noise-damaged mammalian cochlea," "The role of noise in the etiology of aging-related changes in the inner ear" and "Survival-fixation of the cochlea: A technique for following time-dependent degeneration and repair in noise-exposed chinchillas"

Ann E. Geers

Professor of Psychology

Ph.D., Washington University

CID: Senior Research Scientist

Professional and research interests: clinical evaluation of hearing-impaired children, cochlear implants, literacy in hearing-impaired children, communication mode and English-language acquisition

Recent publications: "Speech and language evaluation in aided and implanted children," "Comparing implants with hearing aids in profoundly deaf children," coauthor, "Communication of oral deaf and normally-hearing children at 36 months"

Ira J. Hirsh

Professor of Psychology

Ph.D., Harvard University

CID: Research Director Emeritus

and Director Emeritus

Professional and research interests: temporal aspects of hearing, auditory psychophysics and perception

Recent publications: coauthor, "Auditory psychophysics and perception" and "Influence of spectral locus and F0 changes on the pitch and timbre of complex tones"

James D. Miller

Professor of Psychology

Ph.D., Indiana University

CID: Research Director Emeritus

Professional and research interests: acoustic bases of speech perception, speech production by deaf speakers, communication over multimedia telecommunication networks, biological repair of the inner ear

Margaret W. Skinner

Clinical Professor of Audiology

Ph.D., Washington University

Professional and research interests: cochlear implants

Recent publications: coauthor, "In vivo measures of cochlear length and insertion depth of nucleus cochlear implant electrode arrays" and "Unwrapping cochlear implants by spiral CT," articles on speech recognition in persons with cochlear implants

Brad A. Stach

Professor of Audiology

Ph.D., Baylor College of Medicine

CID: Director of Audiology and Clinical Services

Professional and research interests: clinical audiology, hearing aids, central auditory processing disorders

Recent publications: *Comprehensive Dictionary of Audiology and Clinical Audiology: An Introduction*

Nancy Tye Murray

Director of the Speech and Hearing Sciences Program

Professor of Audiology

Ph.D., University of Iowa

CID: Director of the Center

for Childhood Deafness and Adult Aural Rehabilitation

Professional and research interests: speech production of deaf talkers, speech acquisition and cochlear implant users

Recent publications: *Foundations of Aural Rehabilitation: Children, Adults and Their Family Members*

Associate Professors

J. David Dickman

Research Associate Professor of Vestibular Physiology

Ph.D., University of Wyoming

CID: Associate Research Scientist

Professional and research interests: vestibular structure and function, space biology, sensory neurophysiology and chemoreception

Recent publications: coauthor, "Three-dimensional organization of vestibular-related eye movements during rotational movement in pigeons" and "Distribution and time course of hair cell regeneration in the pigeon utricle," chapters and articles on the vestibular system

Judith M. Ogilvie

Associate Professor

of Neurobiology

Ph.D., Harvard University

CID: Associate Research Scientist

Professional and research interests: molecular mechanisms and neurotrophic factors in sensory cell atrophy and rescue, development and degeneration of photoreceptors and hair cells, gene expression in the neuro-

degenerative model of mouse retina

Recent publications: coauthor, "Dopamine has a critical role in photoreceptor degeneration in the *rd* mouse" and "Photoreceptor rescue in an organotypic model of retinal degeneration"

Kevin K. Ohlemiller

Associate Professor

of Auditory Physiology

Ph.D., Northwestern University

CID: Associate Research Scientist

Professional and research interests: relationship between presbycusis genes, vulnerability of the cochlea to outside noise and ototoxic compounds, free radical production and regulation within sensory cells

Recent publications: "Targeted mutation of the gene for cellular glutathione peroxidase (*Gpx1*) increases noise-induced hearing loss in mice" and "Reduction in sharpness of frequency tuning but not endocochlear potential (EP) in aging and noise-exposed BALB-C mice"

Dwayne D. Simmons

Research Associate Professor

of Auditory Neurophysiology

Ph.D., Harvard University

CID: Associate Research Scientist

Professional and research interests: the embryonic and postnatal development of hearing and deafness, neurotransmitter development in central auditory pathways and the interactions between growing axons and developing sensory hair cells

Recent publications: coauthor, "Differential onset, growth and distribution of the cholinergic neurons in the developing hamster superior olive" and "The human olivocochlear system: organization and development"

Mark E. Warchol

Research Associate

Professor of Auditory Physiology

Ph.D., Northwestern University

CID: Associate Research Scientist

Professional and research interests: sensory regeneration, role of the immune system in promoting receptor survival and repair

Recent publications: "Macrophage activity in the avian cochlea: Demonstration of a resident population and recruitment to sites of hair cell lesions" and "Macrophage secretory products influence the survival of statoacoustic neurons"

Assistant Professors

Lisa S. Davidson

Assistant Professor of Audiology

M.S., Washington University

CID: School Audiologist

Professional and research interests: cochlear implants in children

David I. Mason

Assistant Professor of Audiology

Ph.D., University of Tennessee-Knoxville

CID: Clinic Audiologist

Professional and research interests: hearing aids, hearing aid fittings, factors that affect measures of speech audibility with hearing aids

Johanna G. Nicholas

Assistant Professor

of Psychology

Ph.D., Washington University

CID: Assistant Research Scientist

Professional and research interests: development of the social uses of language by preschool-age children, communication of oral deaf children
Recent publications: coauthor, "Communication in oral deaf and normally-hearing children at 36 months"

Rosalie M. Uchanski

Assistant Professor of

Electrical Engineering

Ph.D., Massachusetts Institute of Technology

CID: Assistant Research Scientist

Professional and research interests: finding objective acoustic measures that are correlated with the speech intelligibility of deaf children, speech perception by hearing-impaired listeners

Recent publications: "The intelligibility of 'modified' speech for young listeners with normal and impaired hearing"

Lecturers

Lynda C. Berkowitz

Lecturer in Education of the Hearing Impaired
M.S., Washington University

Deborah L. Carter

Lecturer in Education of the Hearing Impaired
M.A.T., Webster University

Christine M. Clark

Lecturer in Education of the Hearing Impaired
M.A.Ed., Maryville University

JoEllen B. Epstein

CID School Principal
Lecturer in Education of the Hearing Impaired
M.A.Ed., Maryville University

Barbara A. Lanfer

Lecturer in Education of the Hearing Impaired
M.A.Ed., University of Missouri-St. Louis

Catherine Schroy

Lecturer in Audiology
M.S., Washington University

Adjunct Faculty

Carl D. Bohl

Adjunct Assistant Professor of Environmental Health
D.Sc., University of Cincinnati

Donald G. Brennan

Adjunct Professor of Speech Pathology
Ph.D., Oklahoma Health Sciences Center

J. Eric Driskill

Adjunct Lecturer in Manual Communication
M.Ed., University of Arkansas

Brian T. Faddis

Adjunct Professor of Anatomy
Ph.D., University of California-Davis

Roanne K. Karzon

Adjunct Clinical Assistant Professor of Audiology
Ph.D., Washington University

Laura W. McCann

Adjunct Lecturer in Education of the Hearing Impaired
M.S., Washington University

E. Tracy Mishler

Adjunct Lecturer in Audiology
M.A., Northwestern University

Teralandur K. Parthasarathy

Adjunct Associate Professor of Audiology
Ph.D., University of Texas-Dallas

Kathleen S. Rehwinkel

Adjunct Lecturer in Audiology
M.S., Washington University

Mary H. Russo

Adjunct Lecturer in Audiology
M.S., Washington University

Marlene B. Salas-Provence

Adjunct Assistant Professor of Speech Pathology
Ph.D., University of Illinois at Urbana-Champaign

Michael Valente

Adjunct Professor of Audiology
Ph.D., University of Illinois at Urbana-Champaign

Pamela R. Zacher

Adjunct Lecturer in Education of the Hearing Impaired
M.S.Ed., University of Missouri-St. Louis

Administration

Mark S. Wrighton, Ph.D.

Chancellor of Washington University

Edward S. Macias, Ph.D.

Dean of Arts and Sciences of Washington University

Robert E. Thach, Ph.D.

Dean of the Graduate School of Arts and Sciences of Washington University

Robert G. Clark

Executive Director of CID

William W. Clark, Ph.D.

Chairman of the Department of Speech and Hearing of Washington University

Brad A. Stach, Ph.D.

Director of Audiology and Clinical Services

Nancy Tye Murray, Ph.D.

Director of Speech and Hearing Sciences

Elizabeth Elliott

Professional Education Program Coordinator and Registrar

Rene´ Menendez

Professional Education Program Assistant

Cathy Sarli, M.L.S.

Librarian and Curator

COURSE DESCRIPTIONS

The following courses are currently offered within the Department of Speech and Hearing's two-year curriculum cycle. The Department cannot guarantee that all courses will be offered annually and course offerings depend on demand. The Department reserves the right to add or delete courses and to institute changes in the curriculum and degree requirements as needed.

234 Introduction to Speech and Hearing Sciences and Disorders

3 credit hours

Introduction to speech-language pathology, audiology, education of hearing-impaired children and speech and hearing sciences. Normal speech and hearing processes will be discussed as well as communication disorders. Selected research topics in speech and hearing sciences will be presented. (Identical with Education 234, Linguistics 234 and Psychology 234)

400 Anatomical and Physiological Bases of Speech and Articulation

3 credit hours

Basic anatomy and physiology of the speech modulation system. Emphasis on major anatomical structures related to normal and common pathologies of speech functions.

403 Anatomical and Physiological Bases of Hearing

3 credit hours

Introduction to anatomy and physiology of the peripheral hearing system and central nervous system, including functional descriptions of the systems and processes underlying hearing function and dysfunction.

4011 Behavior Management

2 credit hours

Provides an introduction to various behavior management systems effective in both individual and group environments. Behavior modification, environmental controls, psychodynamic techniques and biophysical interventions are discussed, observed and practiced. Lectures and experience with children.

414 Hearing

3 credit hours

Study of the basic auditory phenomena: sensitivity, psychophysical attributes, masking, localization, adaptation and complex auditory perception. (Identical with Psychology 431)

416 Evaluation Techniques for the Hearing and Language Impaired

3 credit hours

A basic introduction to psychometrics with emphasis on the selection, interpretation and evaluation of tests. Specific techniques for assessing intellectual, educational, linguistic and academic development in the

hearing and language impaired, from infancy through adolescence, will be discussed and demonstrated.

421 Introduction to Electroacoustics

3 credit hours

Principles of physical acoustics and bioacoustics basic to an understanding of normal and abnormal hearing and speech and of the instruments (audiometers, hearing aids, sound analyzers, computers) used in work with hearing-impaired persons.

422 Basic Acoustic Measurements

2 credit hours

Introduction to the description and measurement of sounds affecting communication.

433 Acoustical Phonetics and Speech Perception

3 credit hours

Acoustical analysis of speech sounds; cues and features of speech in production and perception; various effects on speech perception. (Identical with Linguistics 433 and Psychology 438)

435 Language, Its Development and Impairment

3 credit hours

Survey course covering the description of language development in typical and atypical circumstances. Discussion will focus on the child's development in the areas of phonology, morphology, semantics, syntax, pragmatics and metalinguistics. The characteristics and etiology of various types of language impairments are reviewed as well as current theories of language acquisition. (Identical with Linguistics 435)

Sample Course of Study — Audiology

Year One—Fall Semester

- 400 Anatomical and Physiological Bases of Speech and Articulation
- 403 Anatomical and Physiological Bases of Hearing
- 421 Introduction to Electroacoustics
- 460 Observation and Practicum in Audiology
- 466 Rehabilitative Audiology
- 562 Hearing Evaluation and Diagnosis I

Year One—Spring Semester

- 433 Acoustical Phonetics and Speech Perception
- 4610 Practicum in Audiology I
- 468 Diagnostic Pediatric Audiology
- 563 Hearing Evaluation and Diagnosis II
- 565 Hearing Devices in Audiology I
- 569 Hearing Disorders

Year Two—Fall Semester

- 414 Hearing
- 436 Introduction to Manual Communication (Elective)
- 4611 Practicum in Audiology II
- 5652 Hearing Devices in Audiology II
- 566 Advanced Hearing Evaluation and Diagnosis
- 568 Clinical Electrophysiology Assessment

Year Two—Spring Semester

- 457 Counseling Parents of Hearing-Impaired Children
- 4612 Practicum in Audiology III
- 511 Effects of Noise on Hearing
- 5653 Hearing Devices III: Cochlear Implants
- 570 Independent Study

436 Introduction to Manual Communication

2 credit hours

Analysis and comparison of American Sign Language and other sign systems used by hearing-impaired people. Review of related literature and research. Lectures, demonstration, reading.

440 Cochlear Implants in Children: Rehabilitative Techniques

2 credit hours

Course will cover a variety of topics related to selection, fitting and rehabilitation of pediatric cochlear implant patients. Lectures and practical experience in psycho-physical testing, programming of the cochlear implant and auditory training with children.

4501 Observation and Practicum in Education

2 credit hours

Supervised observation and field experience in a classroom prior to full-time student teaching.

4511 Practicum in Education of the Hearing Impaired I

4 credit hours

Supervised practicum in Education of the Hearing Impaired.

4512 Practicum in Education of the Hearing Impaired II

4 credit hours

Supervised practicum in Education of the Hearing Impaired.

4513 Practicum in Reading for Hearing-Impaired Children I

1 credit hour

Supervised practicum in teaching reading to hearing-impaired children.

4514 Practicum in Reading for Hearing-Impaired Children II

1 credit hour

Supervised practicum in teaching reading to hearing-impaired children.

4515 Language Instruction for Hearing-Impaired Children

3 credit hours

Principles and methods of developing competence in spoken English in hearing-impaired toddlers and children through age 15. This course includes presentation of instructional techniques for teaching hearing-impaired children English vocabulary and syntax, as well as techniques for developing and encouraging spoken language for communicating. Permission of instructor is required for those not in the Program in Education of the Hearing Impaired.

4525 Reading Instruction for Hearing-Impaired Children

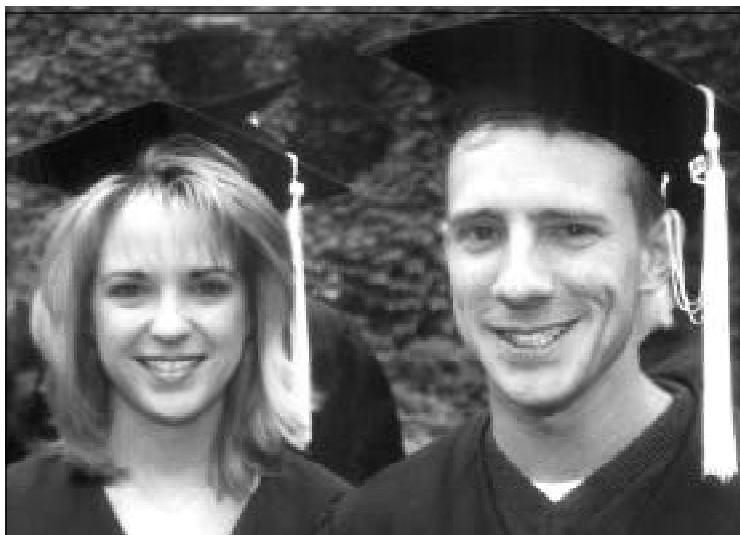
3 credit hours

Principles and methods of developing reading competence in normal-hearing and hearing-impaired children with an emphasis on the stages of development and appropriate teaching sequences. Various approaches to teaching reading to normal-hearing children are presented and appropriate adaptations for hearing-impaired children are discussed as well as techniques and materials designed specifically to accommodate to the language deficit exhibited by some hearing-impaired children.

454 Education Curricula for Hearing-Impaired Children I

3 credit hours

Principles and methods of teaching subject matter, including written language, science, social studies, mathematics and physical education, and the use of instructional technology. Mainstreaming is discussed. Lectures, demonstrations, observations and some practice teaching.



455 Education Curricula for Hearing-Impaired Children II

3 credit hours

Principles and methods of teaching subject matter, including written language, science, social studies, mathematics and physical education, and the use of instructional technology. Mainstreaming is discussed. Lectures, demonstrations, observations and some practice teaching.

457 Counseling Parents of Hearing-Impaired Children

3 credit hours

Study of the social, psychological and educational needs of parents as they relate to their hearing-impaired child.

458 Speech for Hearing-Impaired Children

3 credit hours

Development, improvement and maintenance for hearing-impaired children through multisensory approaches. Articulation, voice and rhythm patterns are considered. Lectures, demonstrations and practice.

Awards

The Antoinette Frances Dames Award for Outstanding Scholarship as judged by the faculty is awarded each year to a second-year graduating student in Education of the Hearing Impaired. The award is made possible through a bequest to Washington University from Antoinette Frances Dames.

The Max A. Goldstein Award, named to honor CID's founder, is presented annually to a second-year graduating CID student who, judged by the faculty, shows professional promise and academic excellence.

460 Observation and Practicum in Audiology

2 credit hours

Supervised observation/field experience prior to full-time clinical work.

4610 Practicum in Audiology I

2 credit hours

Supervised practicum in audiology.

4611 Practicum in Audiology II

4 credit hours

Supervised practicum in audiology.

4612 Practicum in Audiology III

4 credit hours

Supervised practicum in audiology.

463 Introduction to Audiology

3 credit hours

A survey of the entire field of audiology. Topics include the physics of sound, normal and disordered hearing of both children and adults, standard and advanced measures of auditory function, rehabilitative strategies such as hearing aids and cochlear implants and the profession of audiology as a career.

466 Rehabilitative Audiology

3 credit hours

Principles and methods of aural rehabilitation with an emphasis on patient management. Topics include communication strategies and conversation styles, speech recognition assessment and hearing aid service provisions for adults, older persons, children and family members.

468 Diagnostic Pediatric Audiology

2 credit hours

Fundamentals of audiologic assessment for infants and children. Behavioral as well as electrophysiologic procedures will be presented. Assessment of auditory processing abilities will be covered.

511 Effects of Noise on Hearing
3 credit hours

Discussion of topics, selected year by year, in hearing, auditory perception, noise-induced hearing loss and industrial hearing conservation. (Identical with Psychology 555)

519 Psychosocial and Educational Aspects of Deafness

3 credit hours

Lectures and discussions of the history, trends and philosophical approaches to deaf/Deaf education, and of the psychosocial characteristics of deaf/Deaf cultures.

5301 Seminar in Language Pathology

3 credit hours

Lecture, reading and discussion on the nature, diagnosis and treatment of various pathologies of language other than those associated with hearing impairment.

5401 Seminar in Speech Pathology

3 credit hours

Lecture, reading and discussion on the nature, diagnosis and treatment of various pathologies of speech, other than those associated with hearing impairment.

562 Hearing Evaluation and Diagnosis I

3 credit hours

Analysis of clinical tests of auditory function and expected results associated with different anatomical sites of dysfunction. Principles of selection and interpretation of testing, infancy through adulthood, including brainstem responses.

563 Hearing Evaluation and Diagnosis II

3 credit hours

Analysis of clinical tests of auditory function and expected results associated with different anatomical sites of dysfunction. Principles of selection and interpretation of testing, infancy through adulthood, including brainstem responses.

565 Hearing Devices in Audiology I

3 credit hours

Philosophical issues related to the selection and evaluation of hearing aids. Means of adjusting hearing aids and measuring their function and benefit. Alternative devices for hearing-impaired listeners will be discussed.

5652 Hearing Devices in Audiology II

3 credit hours

Philosophical issues related to the selection and evaluation of hearing aids. Means of adjusting hearing aids and measuring their function and benefit. Alternative devices for hearing-impaired listeners will be discussed.

5653 Hearing Devices in Audiology III

3 credit hours

Philosophical issues related to the selection and evaluation of hearing aids. Means of adjusting hearing aids and measuring their function and benefit. Alternative devices for hearing-impaired listeners will be discussed.

Sample Course of Study — Education of the Hearing Impaired (Two Year)

Year One — Fall Semester

- 4011 Behavior Management
- 403 Anatomical and Physiological Bases of Hearing
- 422 Basic Acoustic Measurements
- 435 Language, Its Development and Impairment
- 4515 Language Instruction for Hearing-Impaired Children

Year One — Spring Semester

- 433 Acoustical Phonetics and Speech Perception
- 4525 Reading Instruction for Hearing-Impaired Children
- 454 Education Curriculum for Hearing-Impaired Children I
- 458 Speech for Hearing-Impaired Children
- 519 Psychosocial and Educational Aspects of Deafness

Year One — Postsession

- 440 Cochlear Implants in Children: Rehabilitative Techniques

Year Two — Fall Semester

- 416 Evaluation Techniques for the Hearing and Language Impaired
- 436 Introduction to Manual Communication
- 4511-13 Practicum
- 455 Education Curriculum for Hearing-Impaired Children II
- 466 Rehabilitative Audiology

Year Two — Spring Semester

- 4512-14 Practicum
- 457 Counseling Parents of Hearing-Impaired Children
- 570 Independent Study
- 572 Evaluating and Reporting Research in Speech and Hearing

Inquiries should be addressed to:

Professional Education Program

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Librarian and Curator

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fax: 314.977.0024

csarli@cid.wustl.edu

**566 Advanced Hearing
Evaluation and Diagnosis**
3 credit hours

Discussion and practice with
complex tests of auditory
function.

**568 Clinical Electrophysiology
Assessment**
3 credit hours

Fundamental principles essential
to the understanding of clinical
electrophysiology assessment and
the clinical application of these
procedures.

569 Hearing Disorders
3 credit hours

Covers the nature and causes
of hearing disorders, including
outer and middle ear, cochlear,
retrocochlear and central
nervous system.

570 Independent Study
1-6 credit hours

**571/ Evaluating and
572 Reporting Research
in Speech and
Hearing**
2 credit hours

Critical discussion of
professional periodicals and
current books dealing with
speech and hearing disorders
and related fields. Emphasis on
research methods and analysis
of findings. Communication
skills and speaking techniques
are emphasized through oral
presentations by the students
and critiques of those
presentations.

575 Special Topics
1-6 credit hours

**577 Research in Speech
and Hearing**
1-12 credit hours

587 Dissertation Research
1-12 credit hours

**597 Supervised Teaching
in Speech and Hearing**
1-6 credit hours

CID's one-year master's
program in Education
of the Hearing Impaired
is designed for students
holding a bachelor's degree
and certification in deaf
education and/or experienced
teachers of the deaf. Students
gain knowledge and experi-
ence in speech and hearing
sciences, curricula for hearing-
impaired children, speech
and language instruction,
cochlear implants and
aural rehabilitation. The
program provides advanced
training and experience
tailored to the individual
student's needs.

**Sample Course of Study — Education
of the Hearing Impaired (One Year)**

Fall Semester

416	Evaluation Techniques for the Hearing and Language Impaired
422	Basic Acoustic Measures
4511-13	Practicum
4515	Language Instruction for Hearing-Impaired Children
455	Education Curricula for Hearing-Impaired Children II

Spring Semester

433	Acoustical Phonetics and Speech Perception
4512-14	Practicum
4525	Reading Instruction for Hearing-Impaired Children
570	Independent Study
572	Evaluating and Reporting Research in Speech and Hearing

Postsession

440	Cochlear Implants in Children: Rehabilitative Techniques
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