1993

PACS Bulletin 1993-1994

Program in Audiology and Communication Sciences
Washington University School of Medicine

CID students receive degrees from Washington University and work as audiologists, scientists, and teachers of the hearing impaired.

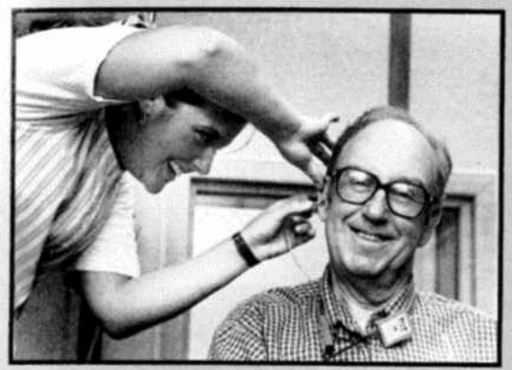
Requests for admission forms and other inquiries should be addressed to

Registrar
Professional Education Programs
Central Institute for the Deaf
818 South Euclid
St. Louis, MO 63110

Telephone:
(314) 652-2200 (ext. 240)

Central Institute for the Deaf
AT WASHINGTON UNIVERSITY

Professional Education and Communication Sciences Bulletin 1993-1994



Audiology

Education of the Hearing Impaired

Communication

CID graduates work with all ages and in a variety of professional settings all over the world.

Administrative Officers

Washington University
Department of Speech and Hearing

William H. Danforth, M.D., Chancellor of Washington University

Martin H. Israel, Ph.D., Dean of the Faculty of Arts and Sciences, Washington University

Edward N. Wilson, Ph.D., Dean of the Graduate School of Arts and Sciences, Washington University

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Ira J. Hirsh, Ph.D., Director of Central Institute for the Deaf and Chairman of the Department of Speech and Hearing

Gerald R. Popelka, Ph.D., Director of the Professional Education Programs, Department of Speech and Hearing

William W. Clark, Ph.D., Director of the Graduate Program in Communication Sciences, Department of Speech and Hearing

Cathy Eckenrod, Registrar for the Professional Education Programs, Department of Speech and Hearing

Mary M. Sicking, Librarian for the Professional Education Programs, Department of Speech and Hearing

Central Institute for the Deaf
AT WASHINGTON UNIVERSITY

Professional Education and Communication Sciences Bulletin 1993-1994

The Department of Speech and Hearing of Washington University is governed and operated by Central Institute for the Deaf (CID), a private institution. Administratively, the Department is within the University's Graduate School of Arts and Sciences. This bulletin describes the academic programs of the Department of Speech and Hearing.

The Department of Speech and Hearing offers three programs leading to a master's degree and one program leading to a doctoral degree. Although a student enrolled in one degree program may elect courses from the other degree programs, each degree program is independent of the others and has different admission requirements, prerequisites, and coursework.

The Academic Programs

Audiology

A clinical audiologist is one who is qualified to diagnose hearing impairment, to administer and interpret hearing tests, to carry on work in hearing conservation, and to advise about and participate in the rehabilitation of the hearing impaired, including fitting and adjusting hearing aids and other devices. Clinical audiologists serve the entire age-range of patients, from infants to the elderly. Audiology is an independent, service-oriented profession legally controlled by most of the individual states within the United States and often by similar governing bodies in other countries. A master's degree is the required entry-level academic degree for all clinical audiology positions in the United States. In addition, most audiological positions require that the individual be certified by the American Speech-Language-Hearing Association (ASHA).

Audiology graduates practice their profession in hospitals, in medical clinics, in private practice environments, in university clinics, in community speech and hearing centers, and in various regular and special school systems, including public and private schools for the deaf. The two-year Audiology Program at Washington University leads to a Master of Science degree in Speech and Hearing that fulfills all of the academic requirements for certification and state licensure.

Degree candidates in the Audiology program proceed from broadly based classroom instruction and clinical observation to progressively more specialized coursework and practicum. There is a requirement of four semesters in academic residence along with intensive

Audiology students proceed from mostly classroom courses to mostly practicum experiences both on- and off-campus.

laboratory-based intersession courses conducted between semesters. Although a master's thesis is not required, each graduate student is required to present orally the results of an independent study. In addition, an oral examination on all graduate work is given during the fourth semester.

Our Audiology graduate students are given a wide variety of opportunities to put into practice, under competent supervision, what they have observed and studied in the classroom. All clinical practicum is one-to-one with a fully-certified and licensed supervising audiologist. In addition to clinical locations within associated hearing, speech, and language clinics at CID, practicum is provided by supervisors working at a variety of hospitals in the Washington University Medical Center (e.g., Children's Hospital and Barnes Hospital), at a variety of off-campus hospitals (e.g., Cardinal Glennon Children's Hospital and St. Mary's Hospital), and at other locations (e.g., Midwest Otologic Group and the St. Louis Hearing and Speech Center). Clinical practicum is provided in all areas of audiologic practice, including standard testing (e.g., pure-tone and speech audiometry), special diagnostic testing (e.g., auditory brainstem testing and intraoperative monitoring), conventional rehabilitative procedures (e.g., the fitting of hearing aids and assistive listening devices), and special rehabilitative procedures (e.g., adjustment of cochlear implants and auditory training in children).

We admit only six to eight new Audiology students each year, making us a relatively small program. Compared to larger departments, we are more readily able to personalize the academic experience and to tailor the program to the student's individual needs. This tailored approach is also evident in our admissions policies which allow us to accept students from all undergraduate disciplines, including biology, psychology, and communication disorders.

Education of the Hearing Impaired

An educator of the hearing impaired is one who is qualified by academic training to educate children with hearing impairments. The educational process for hearing-impaired children necessarily involves work on the development of language and speech. For very young children, language and speech concepts are conveyed through work in a variety of settings and generally involve parental participation. For older children, language and speech are taught in a classroom setting in concert with conventional academic subjects (e.g., reading, mathematics, geography, etc.) normally taught in grades kindergarten through twelve. The profession is service-oriented and governed by educational certification requirements specified by the individual states within the United States and often by similar agencies in other countries. In addition, most positions in Education of the Hearing Impaired require that the individual be certified by the Council on Education of the Deaf (CED). Although some positions are available for individuals with a bachelor's degree, most require a master's degree.

Graduates in Education of the Hearing Impaired teach in many kinds of educational settings, including day and residential schools for the hearing impaired, and in a variety of special settings, including special school districts for handicapped children, parent-infant programs, and cochlear implant centers. The teaching can be carried out in the traditional classroom setting or in a more specialized setting. Our two-year program leads to a Master of Science degree in Speech and Hearing that fulfills certification requirements in most states, including the State of Missouri.

Degree candidates in the Education of the Hearing Impaired program proceed from broadly based classroom instruction and observation to progressively more specialized coursework and teaching practicum. In each successive semester, time spent in academic courses is reduced and time spent in teaching practicum is increased. There is a requirement

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

of four semesters in academic residence along with intensive laboratory-based intersession courses conducted between semesters. Although no master's thesis is required, each student must orally present the results of an independent study project. An oral examination of all graduate work is given just prior to graduation. Ample experience in managing groups of children is provided as part of the practicum requirements for courses in Child Management and Development.

CID operates a school for the deaf with an enrollment of about one hundred children and staffed with experienced teachers. This school environment allows a substantial amount of directly supervised classroom experience for students in the program. Graduates are fully prepared to carry out an oral (speech, lipreading, and auditory training) approach to education and are qualified for positions in both oral-only settings and settings that employ total communication (a combination of oral and manual communication methods).

Because of differing certification requirements both in the United States and among other countries, students may opt to study in the Education of the Hearing Impaired program under a special status. Special status may be granted in the case of a foreign student intending to return to his or her own country and teach in a language other than English. This special status student will be in residence for only one year and will take only the relevant academic coursework, not the teaching practicum. If sufficient coursework is completed, the master's degree will be awarded. For those cases where a degree is not conferred, a special certificate will be issued acknowledging the course of study.

On very rare occasions, special status also may be granted to undergraduate students who do not wish to attain a graduate degree and intend to work in a state that allows education of the hearing impaired by teachers with a bachelor's degree. Such students must have completed sufficient undergraduate coursework to be considered a college-level junior. After completing the two-year graduate-level curriculum, they will be awarded a Bachelor of Science degree in Speech and Hearing. This bachelor's level degree is awarded through University College of Washington University.

Communication Sciences students benefit from on-campus research facilities. For example, shown is the CID anechoic chamber, a controlled environment where research is conducted on the properties and perception of sound.

Communication Sciences

Scientists who further our understanding of communication processes perform experiments with human or animal subjects and 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 Communication 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.

Our program in Communication Sciences prepares individuals for careers in research and academic teaching at the college level. Typically, the student spends approximately three years doing academic coursework and research projects and one or two years completing a dissertation. The emphasis is on the basic sciences of normal communication processes and does not necessarily include studies of hearing loss or deafness. Our graduates are prepared to enter college faculty positions at the assistant professor level in many different disciplines.

Like the communication process itself, the program is multidisciplinary and includes courses relevant to the scientific study of speech, language, and hearing. After a core set of courses common to all scientific preparation, the remainder of the program is tailored specifically to the student's interests. Such specialized coursework is offered within our own Speech and Hearing Department as well as in other departments at Washington University, including Biology, Education, Electrical Engineering, Computer Science, Linguistics, and Psychology. Courses are also available from departments in the Washington University School of Medicine, including Anatomy, Neurobiology, Neurology, Otolaryngology, Physiology, and Biophysics.

A candidate for an advanced degree in Communication Sciences is expected to have a basic knowledge of aspects of these fields that pertain to speech, language, and hearing and to defend this knowledge with written and oral exams. The candidate is also expected to demonstrate knowledge and expertise in one of the following core areas in which dissertation research will be carried out: biophysics and neurophysiology of hearing, acoustics and electroacoustics, psychoacoustics, sensory behavior of animals, speech perception and production, phonetics, psycholinguistics, or research applied to audiology or education of the hearing impaired.

On rare occasions, it is possible to receive a Master of Arts degree in Communication Sciences. This special degree program is shorter than the doctoral program, requires a master's thesis rather than a doctoral dissertation, and eliminates the written examination. It is also possible to work simultaneously on a doctoral degree in Communication Sciences and on one of the professional master's degrees, in either Audiology or Education of the Hearing Impaired.

The Faculty

Professors

Ira J. Hirsh, Ph.D., Professor of Psychology
James D. Miller, Ph.D., Professor of Psychology
Gerald R. Popelka, Ph.D., Professor of Audiology

Associate Professors

William W. Clark, Ph.D., Associate Professor of Physiological Acoustics
Ann E. Geers, Ph.D., Associate Professor of Psychology
Jean S. Moog, M.S., Associate Professor of Education of the Hearing Impaired

Assistant Professors

Marilyn French-St. George, Ph.D., Assistant Professor of Audiology
Victoria J. Kozak, M.A.Ed., Assistant Professor of Education of the Hearing Impaired
David I. Mason, Ph.D., Assistant Professor of Audiology
Johanna Nicholas, Ph.D., Assistant Professor of Psychology
Karen S. Stein, M.A.Ed., Assistant Professor of Education of the Hearing Impaired

Lecturers

Lisa S. Davidson, M.S., Lecturer in Audiology
Christine H. Gustus, M.S., Lecturer in Education of the Hearing Impaired
Karen R. Kupper, M.S., Lecturer in Education of the Hearing Impaired
Laura W. McCann, M.S., Lecturer in Education of the Hearing Impaired
Elizabeth H. Vrugtman, M.Ed., Lecturer in Education of the Hearing Impaired
Pamela R. Zacher, M.S.Ed., Lecturer in Education of the Hearing Impaired

Research Faculty

Barbara A. Bohne, Ph.D., Research Associate Professor of Anatomy and Physiology
Julius L. Goldstein, Ph.D., Research Professor of Electrical Engineering
Martin S. Silverman, Ph.D., Research Assistant Professor of Physiology

Adjunct Faculty

Carl D. Bohl, D.Sc., Adjunct Assistant Professor of Environmental Health
Donald G. Brennan, Ph.D., Adjunct Professor of Speech Pathology
George A. Gates, M.D., Adjunct Professor of Otolaryngology
Gary R. LaBlance, Ph.D., Adjunct Assistant Professor of Speech Pathology
Teralandur K. Parthasarathy, Ph.D., Adjunct Assistant Professor of Audiology
Gayle M. Santucci, Ph.D., Adjunct Assistant Professor of Audiology

Clinical Faculty

Roanne K. Karzon, Ph.D., Clinical Assistant Professor of Audiology
Margaret W. Skinner, Ph.D., Clinical Assistant Professor of Audiology

Emeritus Faculty

Donald H. Eldredge, M.D., and S. Richard Silverman, Ph.D.

About the Faculty

The faculty of the Department of Speech and Hearing is comprised of 28 highly qualified individuals, each a specialist in his or her field. Prepared in many academic institutions, the faculty constitutes an educationally and scientifically diverse group. Although members of the faculty are specialists in different fields, they are ever-sensitive to CID's broad range of purposes.

In addition to academic teaching, the faculty directs its attention to issues in CID's classrooms, laboratories, and clinics. With the assistance of graduate students who gain valuable experience, or in some instances in cooperation with various departments of Washington University, they continually seek the answers to challenging questions at the forefront of research into speech, language, and hearing. Each faculty member is pursuing a career in teaching, research, or clinical service as well as performing his or her college teaching responsibilities. The primary advantage of such an arrangement, of course, is that the information, knowledge, and material they teach is the result of direct involvement with the subject matter at hand.

Our faculty is relatively large in relation to the small number of graduate students we accept. This keeps the teaching load for any individual faculty member very small compared to that in typical departments, resulting in high quality teaching at a personal level.

About the Students

At CID, the 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 CID's academic programs are carefully selected on the basis of academic qualifications and professional promise.

CID's students come from all over the world. Not only have most of the states of the Union been represented at some time or other in the CID student body, 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. We encourage applications from, and give full consideration to, all applicants for admission without respect to gender, race, color, creed, age, or national origin.

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

CID houses one of the world's outstanding libraries devoted to speech, language, and hearing.

About the Campus

Washington University has two campuses, abutting opposite ends of Forest Park, the site of the 1904 World's Fair. The main campus on the west end of the park houses undergraduate programs, university administration, and certain graduate programs and professional schools such as Law and Business Administration. The campus on the east side of the park constitutes the Washington University Medical Center, which houses the Medical School and certain specialized departments such as the Speech and Hearing Department located at Central Institute for the Deaf.

The Medical Center Campus is located in the Central West End community of the City of St. Louis. From this campus, one can travel minutes by car or bus to many cultural and historical offerings, including the renowned St. Louis Symphony, live theater, the Jefferson National Expansion Memorial (the Gateway Arch), the Missouri Botanical Garden, riverboat cruises, major sports events, and a diverse selection of entertainment and nightlife.

CID is also walking distance from shops and restaurants serving many interests and tastes. Because the campus adjoins Forest Park, facilities for tennis, walking, golf, cycling, skating and riding are at the student's easy disposal. The park 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. Speech and Hearing students are entitled to use the facilities of Washington University—both on the Medical Center campus and on the main campus, located about two miles away on the west side of Forest Park.

CID houses one of the world's outstanding libraries devoted to hearing, language, speech, deafness, and related fields and has its own librarian. The libraries of Washington University, as well as the on-line computer databases of libraries throughout the world, are also accessible to registered students. Associated with the library is the Max A. Goldstein collection. This collection includes first editions of rare books, some dating to the 15th century, which are housed in the Washington University School of Medicine rare book collection. Also associated with the library is a collection of devices showing the evolution of nonelectrical and electrical hearing aids from their inception centuries ago until the present.

Affiliation and Accreditation

From its founding in 1914, Central Institute has conducted a program of preparation for teachers and other professional personnel in the field of speech, hearing, and language disorders. CID was a pioneer in this area of specialized professional education and played a major role in developing clinical procedures, educational methods, and standards.

In February of 1931, the Teacher Training College of CID was officially affiliated with University College of Washington University. By virtue of this affiliation, the degree of Bachelor of Science in Speech and Hearing is granted to qualified graduates. In September of 1936, the Board of Graduate Studies of Washington University approved a program leading to the degree of Master of Science in Education for qualified students through the School of Graduate Studies. Subsequently, a combination of course offerings was established that led to the degrees of Master of Science in Speech and Hearing with an emphasis in Audiology, a Master of Science in Speech and Hearing with an emphasis in Education of the Hearing Impaired, and Master of Arts in Communication Sciences. The curriculum for the Doctor of Philosophy degree in Communication Sciences, originally called Audiology, was established in September of 1947.

CID's college academic program now comprises the University's Department of Speech and Hearing. Requirements for admission of students, appointments to the faculty, and comprehensive examinations fall within the jurisdiction of the appropriate officers of the University. 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, and the North Central Association of Colleges and Secondary Schools. CID is located in and is a member of the Washington University Medical Center, which houses the University Medical School and a variety of teaching hospitals.

The Program in Audiology is accredited by the Educational Standards Board (ESB) of the American Speech-Language-Hearing Association (ASHA). All of the on-campus clinical practicum sites are accredited by the Professional Services Board (PSB) of ASHA and all clinical supervisors have a Certificate of Clinical Competence (CCC), also from ASHA.

The Program in the Education of the Hearing Impaired is accredited by the National Commission on the Accreditation of Teacher Education (NCATE) as part of the accreditation of the Teacher Education Program at Washington University. The program is also accredited by the Council on the Education of the Deaf (CED). The CID school for hearing-impaired children is accredited by the Missouri Department of Elementary and Secondary Education and also has the distinction of being the only school for hearing-impaired children honored for Excellence in Education by the U.S. Department of Education (1986).

Admission Requirements

Admission requirements differ among the various degree programs. All application materials are reviewed independently by individual faculty members and a decision is made by the Admissions Committee. Admission decisions for entrance in the fall semester each year are made on or prior to March 15. Students seeking admission should apply well in advance of this date. There are no mid-year admissions, although requests for early decision on admission are honored.

Graduates with a bachelor's degree from an accredited university or college are eligible to be considered for admission to the graduate programs in Audiology, Education of the Hearing Impaired, or Communication Sciences. Grades in undergraduate study should average at least 2.5 on a 4.0 scale. Standard test scores, letters of recommendation, and other evidence of professional promise are taken into account along with undergraduate grades.

The Graduate Record Examination (GRE) is required. Although we do not have a criterion score for admission, a student should obtain a score of at least 400 on the verbal section and at least 400 on the quantitative section. Information and application forms for the GRE are available at most colleges and universities or may be requested directly from: Educational Testing Service, Princeton, NJ 08540, Telephone: (609) 921-9000.

Additional Admission Requirements for the Graduate Program in Audiology

Applicants from all undergraduate disciplines are eligible for the Audiology program. However, certification rules require that certain courses be taken at the undergraduate level. Applicants need have had no undergraduate work in speech and hearing or communication disorders, but are required to show evidence of having completed at least the following college-level courses:

Biological Sciences/Physical Sciences—one course
Mathematics—one course (a statistics course may satisfy this requirement)
Behavioral/Social Sciences—two courses

It is possible to fulfill a deficiency in one or two of these requirements during the summer after the first year of graduate study.

Applicants with undergraduate coursework in communication disorders may waive certain courses in the Audiology curriculum with approval from the Director of Professional Education. Although waiver of courses will result in a reduction of academic work for the semester, it generally will not allow for substitution of additional classes in an attempt to finish earlier than within the allotted four semesters.

Additional Requirements for the Graduate Program in Education of the Hearing Impaired

Some states require a background in regular elementary education to qualify for credentials to teach hearing-impaired children. We recommend that this experience be completed before studying at Central Institute.

The degree in Education of the Hearing Impaired is a teaching degree and, as such, falls under the Teacher Certification requirements for the State of Missouri. Our program requires completion of certain courses during a student's undergraduate studies. Listed below are the requirements that need to be completed before a teaching degree can be awarded:

Education and Psychology of the Exceptional Child—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 must be included from either **Biological Science** 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 2 semester units in length.

Requirements for Admission to the Undergraduate Degree Program

Of the degree programs, only the curriculum in Education of the Hearing Impaired is open to undergraduates. This program will fulfill certification requirements for the State of Missouri for Education of the Hearing Impaired at the bachelors degree level. Only a limited number of college students are accepted. Students are accepted at the level of an undergraduate junior but should apply well in advance of the junior year—preferably in the first semester of the sophomore year. Undergraduate applicants from Washington University's College of Arts and Sciences or University College, or from any other accredited university or college, must have successfully completed 60 semester units of preprofessional curriculum, including:

Education—6 semester units, including **Education and Psychology of the Exceptional Child**
English Composition—6 semester units
Humanities (Art & Archeology, the Classics, Foreign Language, Literature, Music, Philosophy, Religious Studies—6 semester units
Mathematics—3 semester units
Physical Life Sciences—6 semester units (one course in a **Biological Science** and one course in a **Physical/Earth Science**—one lab component must be included)
Social, Behavioral Sciences—6 semester units (**Anthropology, Economics, History, Political Science, Psychology, Sociology**)
Required Electives—15 semester units (additional courses in **Humanities, Physical Science, or Social Science**)
Open Electives—12 units

History courses may satisfy either the Humanities or the Social Sciences requirement,

At CID, the curriculum is designed to help students get the most from their practicum experiences.

need to be completed in a student's undergraduate studies before a degree can be awarded. These requirements are listed in this book under Graduate Degree Requirements.

On the undergraduate level, a score from either the Scholastic Aptitude Test (SAT) or the American College Test (ACT) is required.

One-Year Program of Advanced Study

This program provides continuing education and advanced training for speech pathologists, audiologists, teachers of hearing-impaired children, and regular education personnel who can make available an academic year for intensive study. They may seek to learn techniques for working with children wearing cochlear implants or tactile aids, to update their knowledge to include recent advances in technology or pedagogy, to improve their ability in an area in which their original professional education was deficient (e.g., teaching speech or auditory training or working with cochlear implants), or to enrich their knowledge and ability in order to move into supervisory, management, or other leadership roles.

A limited number of students will be considered for a one-year course of study individually tailored to meet their needs. Such students will not be considered candidates for a degree. They may audit or take courses for Washington University credit. Students considered for these continuing education programs include advanced post-degree students, persons who meet professional qualifications in one area and who wish to extend their preparation into other areas, and those now in practice who wish to enlarge the scope or increase the depth of their professional activity. Candidates for special student status will be considered on individual merit.

Foreign Students

Students from outside the United States can be either degree candidates or special students, depending on their qualifications and goals. Foreign students are required to present certification of financial support of at least $15,000 per year before a visa eligibility certificate (Form I-20 or IAP-66) 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

Tuition

All applicants must submit an application fee of $35 upon filing. Annual tuition for 1993–1994 will be $6340. Half of the yearly tuition is due at the beginning of the each semester. For special students tuition is charged at a semester unit rate of $275 per unit. A Lab and Teaching Materials fee of $550 will be charged each year. The first half of this fee ($275) is due at the time a student is accepted for admission. The remaining $825 will be due in $275 increments at the beginning of each of the last three semesters.

If a student withdraws from the course before four weeks of the semester have elapsed, tuition will be refunded on a prorata basis. No refunds will be made for subsequent withdrawal except for reasons of poor health or other extenuating circumstances. The decision as to the amount of refund in the latter case rests with the CID administrative officers.

All students are required either to show evidence of sufficient health insurance coverage or to participate in the health insurance plan at the University (e.g.,this cost was approximately $200 for 1992–1993 academic year). An outlay of $300 to $600 for books and supplies is usually sufficient to carry the student for the entire course.

Financial Aid, Self-Help, and Scholarships

Tuition fees are set at substantially less than actual cost, with the remainder provided by CID through endowments, private contributions, and other sources. For 1993–1994 we are able to offer two-year scholarships that provide complete tuition remission for qualified graduate degree candidates.

Housing and food services are available on the CID campus at nonprofit rates. Opportunities for self-help through employment at CID include extracurricular supervision of children, clerical work, and acting as subjects in research laboratories. Students may be selected as dormitory aides, providing 20 hours per week work with children in exchange for board and room expenses.

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

The Max A. Goldstein Award is made annually to a second-year graduating student who, judged by the faculty, shows professional promise and academic excellence.

Housing

A limited number of rooms is available in the Central Institute Residence Hall. For 1993–1994 the rate is: $2500/student/year. The assignment of a room is made with the understanding that the student agrees to occupy the room for the full academic year. A room reservation fee of $100 is required and will be credited to the second semester account. Payments are to be one-half of the annual rate at the beginning of each semester. A security deposit of $60 and a key deposit of $40 are payable on entrance and are refundable at termination of residence, subject to a check for room damage.

Ample housing at reasonable rates is available near the CID campus. The student is advised to consult the Housing Office at Washington University for assistance in finding off-campus housing. CID assumes no responsibility for finding housing for students.

Work with the CID schoolchildren, such as lunchtime cafeteria duty, can be exchanged for room and board.

Meals

Meals are available in the school dining room. For 1993–1994. The rates are:

Full board	$990 per semester
Breakfast only	$250 per semester
Lunch only	$250 per semester
Dinner only	$490 per semester (main meal)

Contracts for meals are made for the full semester. A combination of any two meals may also be purchased. Payments are to made at the beginning of each semester. There is no provision for serving especially prepared food in the dining room. Meals will not be served during Thanksgiving, spring, or mid-winter vacations.

Because CID is located in the Washington University Medical Center, many hospital cafeterias and other eating facilities are within walking distance. A variety of regular restaurants are also close by in the surrounding community.

Programs of Study

The unit of credit in the Speech and Hearing Department is the semester hour. Courses numbered in the 400 series carry graduate credit and may be taken by either undergraduate or graduate students. Courses numbered 500 or higher are open only to graduate students, but may be open to undergraduates with special permission. The subject areas of courses with three-digit designations ending in the following two numbers are as follows:

-00 to - 09	**Physiology**	-40 to - 49	**Speech Pathology**
-10 to - 19	**Psychology**	-50 to - 59	**Education of Hearing Impaired**
-20 to - 29	**Physics**	-60 to - 69	**Audiology**
-30 to - 39	**Linguistics**	-70 to - 79	**Independent Study, General**

Undergraduate students who are candidates for the B.S. in Speech and Hearing must complete a minimum of 120 semester units, including those hours which may have been transferred from another institution.

Candidates for the Master of Science degree must complete a prescribed professional curriculum (see pages 16 and 17).This curriculum will satisfy the Graduate School requirements of a minimum of 33 semester units of graduate credit and at least 6 semester units of credit selected from courses in the 500 series, open only to graduate students. The M.S. candidate must complete an independent study, culminating in a paper to be placed in the CID library. An oral examination, usually taken in the final semester, is required of all graduate degree candidates.

Students may pursue a course of study that will lead to the M.S. in Speech and Hearing, and will prepare them simultaneously for professional certification both in Education of the Hearing Impaired (by the Council on Education of the Deaf) and in Audiology (by the American Speech-Language-Hearing Association). Such a course of study may be expected to take three years or more with the sequence of courses and practicum carefully planned at the outset.

The M.A. candidate in Communication Sciences is expected to complete a minimum of 30 semester units of graduate credit and an acceptable thesis. The requirements for the M.A. degree must be completed within a four-year period. The particular curriculum is individually tailored to the needs of the student.

Candidates for the Ph.D. in Communication Sciences must complete a minimum of 72 graduate semester units (3 years of study), of which at least 2 years (48 semester semester units) must be completed at CID. The requirements for the Ph.D. degree must be completed within seven years.

Prior to registration, all programs of study must be approved by the Department of Speech and Hearing, by the Dean of the Graduate School of Arts and Sciences, or by the Registrar of University College. Students must maintain satisfactory academic and professional progress. The administrative officers reserve the right to dismiss any student who fails to show professional promise or who is guilty of infraction of rules and discipline.

Prescribed Professional Curriculum

Education of the Hearing Impaired

Required courses		Semester units
First-year students, fall semester		
401	Anatomical and Physiological Bases of Speech and Hearing *Santucci*	3
4111	Child Management and Development *Vrugtman*	2
431	Descriptive Phonetics *Miller*	3
435	Language, Its Development and Impairment *Nicholas*	3
451	Language for Hearing-Impaired Children *Moog*	3
463	Introduction to Audiology *Popelka*	3
First-year students, January 1994 intersession		
4501	Observation and Practicum in Education *Moog, Staff*	2
First-year students, spring semester		
4112	Child Management and Development *Vrugtman*	1
433	Acoustical Phonetics and Speech Perception *Hirsh*	3
452	Language and Reading for Hearing-Impaired Children *Moog*	3
454	Educational Curricula for Hearing-Impaired Children *Kupper, McCann*	3
458	Speech for Hearing-Impaired Children *Gustus, Stein*	3
4642	Aural Rehabilitation in an Educational Setting *Davidson*	2
Second-year students, fall semester		
4113	Child Management and Development *Vrugtman*	1
416	Evaluation Techniques for the Hearing and Language Impaired *Geers*	3
4511	Practicum—Education of the Hearing Impaired *Stein, Staff*	4
455	Educational Curricula for Hearing-Impaired Children *Kupper, McCann*	3
457	Management of Parents and Young Hearing-Impaired Children *Kozak*	3
Second-year students, January 1994 intersession		
436	Introduction to Manual Communication *Staff*	2
Second-year students, spring semester		
450	History and Trends in Education of Hearing-Impaired Children *Moog, Stein*	2
4512	Practicum—Education of the Hearing Impaired *Stein, Staff*	4
4561	Psychological and Sociological Characteristics of the Hearing Impaired *Geers, McCann*	2
570	Independent Study (required for M.S. candidates) *Staff*	1-6
572	Readings in Speech and Hearing *Clark*	2
Recommended electives		
5301	Seminar in Language Pathology *Brennan*	3
5401	Seminar in Speech Pathology *LaBlance*	3
571	Readings in Speech and Hearing *Clark*	2

Prescribed Professional Curriculum

Audiology

Required courses		Semester units
First-year students, fall semester		
401	Anatomical and Physiological Bases of Speech and Hearing *Santucci*	3
4111	Child Management and Development *Vrugtman*	2
421	Introduction to Electroacoustics *Clark*	3
431	Descriptive Phonetics *Miller*	3
435	Language, Its Development and Impairment *Nicholas*	3
460	Observation and Practicum in Audiology *Mason*	2
463	Introduction to Audiology *Popelka*	3
First-year students, January 1994 intersession		
460	Observation and Practicum in Audiology *Popelka*	2
First-year students, spring semester		
4112	Child Management and Development *Vrugtman*	1
414	Hearing *Miller*	3
433	Acoustical Phonetics and Speech Perception *Hirsh*	3
4642	Aural Rehabilitation in an Educational Setting *Davidson*	2
466	Rehabilitative Audiology *French-St. George*	3
468	Diagnostic Pediatric Audiology *Karzon*	1
562	Hearing Evaluation and Diagnosis *Popelka*	3
Second-year students, fall semester		
457	Management of Parents and Young Hearing-Impaired Children *Kozak*	3
4611	Practicum—Audiology *Popelka*	4
563	Hearing Evaluation and Diagnosis *Parthasarathy*	3
565	Hearing Devices in Audiology *Mason*	3
Second-year students, January 1994 intersession		
436	Introduction to Manual Communication *Staff*	2
Second-year students, spring semester		
4612	Practicum—Audiology *Popelka*	4
5301	Seminar in Language Pathology *Brennan*	3
	or	
5401	Seminar in Speech Pathology *LaBlance*	3
566	Advanced Hearing Evaluation and Diagnosis *Popelka*	3
570	Independent Study (required for M.S. candidates) *Staff*	1-6
Recommended electives		
511	Seminar in Hearing (alternate years) *Bohl, Clark*	3
571	Readings in Speech and Hearing *Clark*	2
572	Readings in Speech and Hearing *Clark*	2

234 Introduction to Speech and Hearing Sciences and Disorders *Staff*

Course will introduce students to career areas of speech/language pathology, audiology, and education of hearing-impaired children, and to communication sciences. Normal speech and hearing processes will be discussed as well as communication disorders. Selected research topics in Communication Sciences will be presented. (Identical with Psychology 234, Linguistics 234, Education 234.) Three class hours/week. Credit: 3 units.

401 Anatomical and Physiological Bases of Speech and Hearing *Santucci*

Introduction to human embryology with focus on development of head and neck structures used in speech and hearing. Introduction to anatomy and physiology of the peripheral hearing system and central nervous system including functional descriptions of the systems and processes underlying speech and hearing function and dysfunction.

Three class hours/week. Credit: 3 units.

4111–12–13 Child Management and Development *Vrugtman*

Background on general child development and management techniques with groups of hearing-impaired children in recreational, physical education, and other activities outside the classroom. Lectures, discussion, practicum requiring work with children. Credit: variable.

414 Hearing *Miller*

Study of the basic auditory phenomena: sensitivity, psychophysical attributes, masking, localization, adaptation, and complex auditory perception. Prerequisite: Speech and Hearing 421 and 463, or permission of instructor. (Identical with Psychology 431.)

Three class hours/week. Credit: 3 units.

416 Evaluation Techniques for the Hearing and Language Impaired *Geers*

A basic introduction to psychometrics with emphasis on the selection, interpretation, and evaluation of tests. Specific techniques for assessing intellectual, educational, linguistic, and personality development in the hearing and language impaired, from infancy through adolescence, will be discussed and demonstrated. Three class hours/week. Credit: 3 units.

421 Introduction to Electroacoustics *Clark*

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

Three class hours/week. Credit: 3 units.

423 Applied Electroacoustics for Audiology *Staff*

Fundamentals of practical acoustics, terminology, with applications to room acoustics and noise problems; electroacoustic transducers and systems such as hearing aids, audiometers, and recording systems. Prerequisite: Speech and Hearing 421 or equivalent, and college mathematics. Three class hours/week. Credit: 3 units.

426 Communication Engineering and Signal Analysis *Staff*

Quantitative methods basic to precise description of signals and waveforms are developed. Effects of simple mechanical and electrical systems illustrate concepts of linear systems analysis. Practical applications useful for acoustical and electrical measurements are stressed. Prerequisite: Calculus. Three class hours/week. Credit: 3 units.

431 Descriptive Phonetics *Miller*

Description and analysis of speech. Basic physiologic and acoustic phonetics, including systems of orthography. (Identical with Linguistics 431.) Three class hours/week. Credit: 3 units.

433 Acoustical Phonetics and Speech Perception *Hirsh*

Acoustical analysis of speech sounds; cues and features of speech in production and perception; effects on speech perception of linguistic rules and learning. Prerequisites: Speech and Hearing 431, 463, or permission of instructor. (Identical with Linguistics 433 and Psychology 438.) Three class hours/week. Credit: 3 units.

435 Language, Its Development and Impairment *Nicholas*

Description of language systems in animals and humans. Child's development of phonology, morphology, and use of prosodic cues in both perception and production of speech are presented. Theories of language development are discussed in relation to child's acquisition of semantics, syntax, pragmatics, and metalinguistics. Survey of language impairment of children, its etiology, characteristics, and diagnosis is included. (Identical with Linguistics 435.) Three class hours/week. Credit: 3 units.

436 Introduction to Manual Communication *Staff*

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. Credit: 2 units.

450 History and Trends in Education of Hearing-Impaired Children *Moog, Stein*

Lectures and discussion of the history, trends, issues, and philosophical approaches to education of hearing-impaired children. Two class hours/week. Credit: 2 units.

4501 Observation and Practicum in Education *Moog, Staff*

Supervised observation and field experience in a classroom prior to full-time student teaching. Credit: 2 units.

451–52 Language and Reading for Hearing-Impaired Children *Moog*

Principles and methods of developing language and reading competence in normal-hearing and hearing-impaired children with emphasis on stages of development and appropriate teaching sequences. Permission of instructor is required for those not in the program of Education of Hearing Impaired. Three class hours/week. Credit: 3 units.

4511–12 Practicum—Education of the Hearing Impaired *Stein*

Supervised practicum in Education of the Hearing Impaired. Credit: 4 units/semester.

454–55 Education Curricula for Hearing-Impaired Children *Kupper, McCann*

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. Three class hours/week. Credit: 3 units.

4561 Psychological and Sociological Characteristics of the Hearing Impaired *Geers, McCann*

Lectures and discussion of the psychological and sociological characteristics of the hearing-impaired population. Two class hours/week. Credit: 2 units.

457 Management of Parents and Young Hearing-Impaired Children *Kozak*

Study of the social, psychological, and educational needs of parents as they relate to their hearing-impaired child. Three class hours/week. Credit: 3 units.

458 Speech for Hearing-Impaired Children *Gustus, Stein*

Development, improvement, and maintenance for hearing-impaired children through multisensory approaches. Articulation, voice, and rhythm patterns are considered. Lectures, demonstrations, and practice. Prerequisite: Speech and Hearing 431 or equivalent.

Three class hours/week. Credit: 3 units.

460 Observation and Practicum in Audiology *Mason, Popelka*

Supervised observation/field experience prior to full-time clinical work. Credit: 2 units.

4611–12 Practicum—Audiology *Popelka, Staff*

Supervised practicum in Audiology. Credit: 4 units/semester.

463 Introduction to Audiology *Popelka*

Basic acoustics and parameters of hearing. Basic psychoacoustics related to principles and procedures of audiometry. Audiograms related to communication and education. Basic acoustic amplification systems and equipment in audiology. Three class hours/week. Credit: 3 units.

4642 Aural Rehabilitation in an Educational Setting *Davidson*

The study of variables that influence a hearing-impaired child's ability to communicate. Topics include assessment and rehabilitation of speech perception via several sensory modalities including audition, vision, and taction. To be included are the effects of devices such as hearing aids, tactile aids, cochlear implants, and assistive listening devices and how such devices interact with the individual and the environment.Two class hours/week. Credit: 2 units.

466 Rehabilitative Audiology *French-St. George*

Study of systems of teaching lipreading skills to children and adults. Principles and methods of training in the use of residual hearing through amplifying devices in clinical and classroom settings. Demonstrations and lab sessions. Three class hours/week. Credit: 3 units.

468 Diagnostic Pediatric Audiology *Karzon*

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. One class hour /week. Credit: 1 unit.

501 Seminar in Physiology of Hearing *Staff*

Experimental and theoretical issues in auditory physiology. Topics change from year to year. Prerequisite: permission of instructor. Three class hours/week. Credit: 3 units.

503 Independent Work in Auditory Physiology *Staff*

Available either semester. Credit to be arranged.

511 Seminar in Hearing *Bohl, Clark*

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

Three class hours/week. Credit: 3 units (alternate years).

513 Independent Work in Psychoacoustics *Staff*

Available either semester. Credit to be arranged.

518 Seminar in Psychology of the Hearing Impaired *Staff*

Discussion of the effect of a hearing impairment on the behavior of hearing-impaired individuals, their development of concepts, and their personalities. Problems of adjustment of the hearing impaired to a hearing environment with suggestions for guidance.

Three class hours/week. Credit: 3 units.

521 Independent Work in Electroacoustics *Staff*

Available either semester. Credit to be arranged.

5301 Seminar in Language Pathology *Brennan*

Lecture, reading, and discussion on the nature, diagnosis, and treatment of various pathologies of language, other than those associated with hearing impairment.(Alternate years with 5401). Three class hours/week. Credit: 3 units.

5401 Seminar in Speech Pathology *LaBlance*

Lecture, reading, and discussion on the nature, diagnosis, and treatment of various pathologies of speech, other than those associated with hearing impairment. (Alternate years with 5301.) Three class hours/week. Credit: 3 units.

550 Seminar in Education of Hearing-Impaired Children *Staff*

Discussion of topics in education of hearing-impaired children selected year by year.

Three class hours/week. Credit: 3 units.

553–54 Supervision of Programs for Hearing-Impaired Children *Moog, Staff*

Supervision and management of programs for hearing-impaired children. Includes grouping of children, planning curricular sequences, in-service training and evaluation of staff, and home/school relations. Readings and direct observations. Credit: 1–3 units/semester.

562–63 Hearing Evaluation and Diagnosis *Mason, Parthasathy*

Analysis of clinical tests of auditory function, expected results associated with different anatomical sites of dysfunction. Principles of selection and interpretation of testing, infancy through adulthood, including brainstem responses. Prerequisite: Speech and Hearing 463.

Three class hours/week. Credit: 3 units.

565 Hearing Devices in Audiology *Mason*

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. Three class hours/week. Credit: 3 units.

566 Advanced Hearing Evaluation and Diagnosis *Popelka*

Discussion and practice with complex tests of auditory function. Prerequisite: Speech and Hearing 562 and 563 or equivalent. Three class hour/week. Credit: 3 units.

570 Independent Study *Staff*

Available either semester. Credit: 1–6 units, to be arranged.

571–72 Readings in Speech and Hearing *Clark*

Critical discussion of professional periodicals and current books dealing with speech and hearing disorders and related fields. Communication skills and speaking techniques are emphasized through oral presentations by the students and the critiques of those presentations. Two class hours/week. Credit: 2 units/semester.

May be taken either semester or both semesters.

Note: Not all of the courses listed in the preceding section are offered annually. Course offerings depend on demand. The Department of Speech and Hearing reserves the right to cancel courses.