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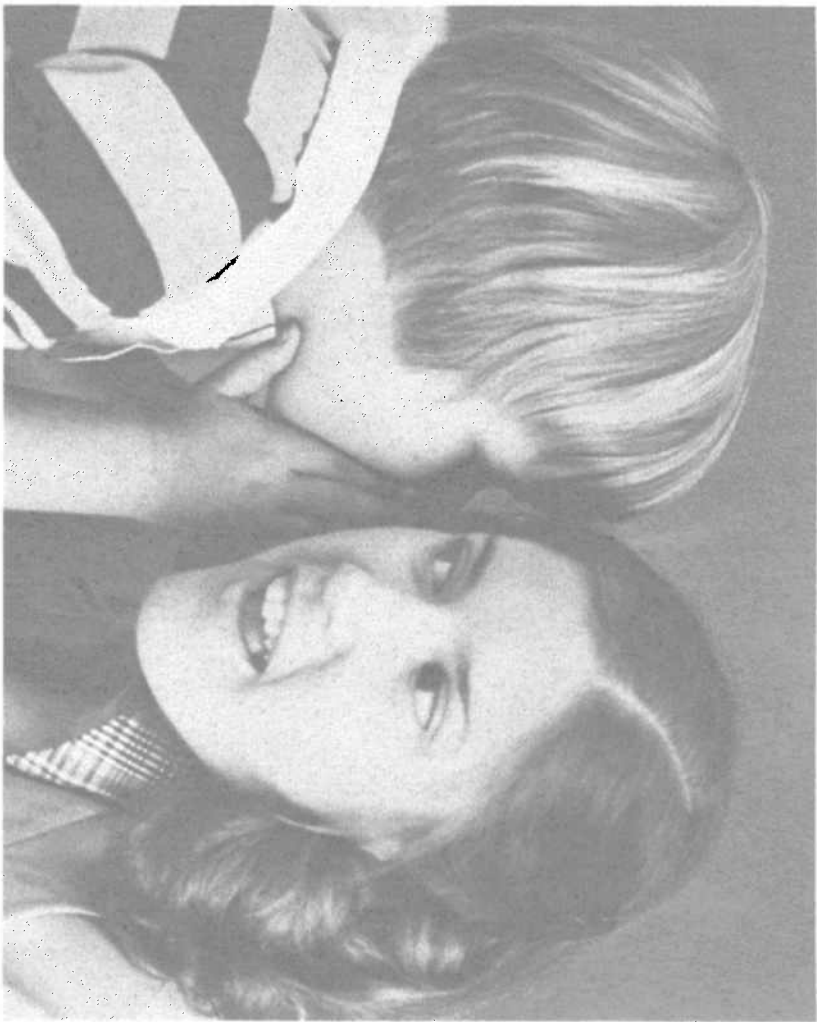
Program in Audiology and Communication Sciences
Washington University School of Medicine

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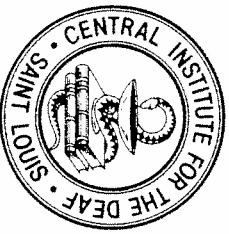
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The student is not just a "taker of courses," but is a member of a professional community, accepting its responsibilities as well as enjoying its privileges.



CENTRAL INSTITUTE FOR THE DEAF

CENTRAL INSTITUTE
FOR THE DEAF



**PROFESSIONAL EDUCATION and
COMMUNICATION SCIENCES
BULLETIN**

1988-89/1989-90

 **Washington**

WASHINGTON UNIVERSITY IN ST. LOUIS
THE SPEECH AND HEARING DEPARTMENT



 Washington
University
Medical

PROGRAMS AND PURPOSES

The Department of Speech and Hearing offers courses in two types of programs. The first group of courses is for students intending to pursue advanced study and degrees in Communication Sciences related to the areas of Audiology, Neurobiology, or Psychology. The second set of courses constitutes the professional education program in the Education of the Hearing Impaired and in Audiology. Many times a student enrolled in one program will elect courses from the other.

COMMUNICATION SCIENCES PROGRAM

The Program in Communication Sciences is oriented toward research, academic teaching, and professional administration. Both the M.A. and the Ph.D. in Communication Sciences, of the Graduate School of Arts and Sciences of Washington University, are offered. The area includes courses relevant to the scientific study of speech, language, and hearing that are offered in the Washington University Departments of Biology, Education, Electrical Engineering, Computer Science, Linguistics, Psychology, and Speech and Hearing, as well as the Medical School Departments of Anatomy, Neurobiology, Neurology, Otolaryngology, Physiology and Biophysics. Candidates for the advanced degrees in Communication Sciences are expected to have a basic knowledge of aspects of these fields that pertain to speech and hearing. In addition the candidate will be expected to demonstrate knowledge and expertise in one of the following core areas, in which, also, his dissertation research will be carried out: Biophysics and neurophysiology of hearing, acoustics and electroacoustics, psychoacoustics, sensory behavior of animals, speech and phonetics, psycholinguistics, and research applied to audiology and the education of the hearing impaired. Admission to the interdepartmental area of Communication Sciences is by recommendation of the faculty. Potential students are advised to consult the bulletin of the Graduate School of Arts and Sciences.

PROFESSIONAL EDUCATION PROGRAM

The Professional Education Program prepares students for service-oriented careers. The two-year course of study leads to the B.S. or M.S. degree in Speech and Hearing. There are two areas of specialized concentration, Education of the Hearing Impaired and Audiology, resting on a common curricular core required of all students. Electives afford additional inter-area crossover. Students specializing in the Education of the Hearing Impaired are prepared to carry out an oral (speech, lipreading and auditory training) pre-school and elementary educational program for deaf and hard of hearing children. In Audiology the graduate is qualified to administer and interpret hearing tests, to carry on work in hearing conservation, and to advise about and participate in the education and rehabilitation of children and adults with hearing handicaps. The program stresses those features that the two fields have in common. Graduates are practicing their profession in public and private residential and day school for the deaf, in school systems, in universities, in community centers, and in hospitals throughout the United States and in other parts of the world.

Modification may be made in the prescribed curricula when individual interests, backgrounds and experience warrant. Such modification is particularly applicable to persons who have a Bachelor's degree and experience in education of hearing-impaired children. The emphasis for such persons may be a one-year course, tailored to meet degree requirements.

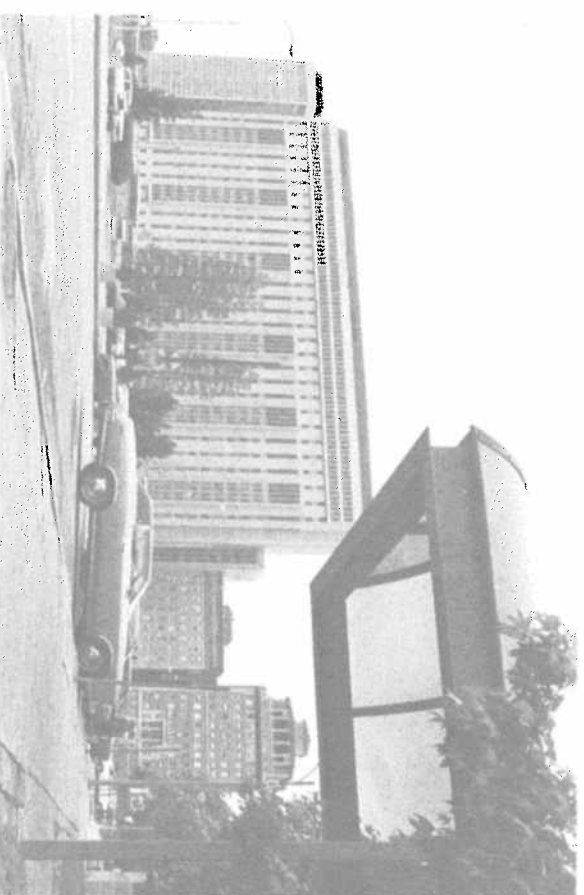
THE STUDENT BODY

The students in the programs are men and women carefully selected on the basis of academic qualifications and professional promise. Not only have most of the states of the Union been represented at some time or other, but foreign countries including Argentina, Australia, Brazil, Canada, Chile, Colombia, Denmark, El Salvador, England, Finland, French Morocco, Ghana, Guatemala, Honduras, India, Ireland, Israel, Jamaica, Japan, Kenya, Korea, Malaysia, Mexico, New Zealand, Nigeria, Norway, Pakistan, Peru, Philippines, Scotland, South Africa, Taiwan, Thailand, Venezuela and the city of Hong Kong have had their share of representation. The influence of the Institute programs are, therefore, truly international. Central Institute and Washington University encourage applications from, and give full consideration to, all applicants for admission and financial aid without respect to sex, race, color, creed, age or national origin. Students enrolled at Washington University may take selected courses in the department. Experienced professional workers who are interested in advanced or refresher work are encouraged to consult the Registrar about courses that may meet their needs.

THE FACULTY

The faculty of the Department of Speech and Hearing is comprised of highly qualified individuals, each a specialist in his own field. Prepared in many academic institutions, the faculty constitutes an educationally and scientifically cosmopolitan group. Although members of the faculty are specialists in different fields, they are ever sensitive to the broad purposes of Central Institute for the Deaf (CID). See page 18.

The Departmental faculty also directs its attention to vital problems of research in the classrooms, laboratories and clinics of the Institute. With the assistance of students, who gain valuable experience therein, and in some instances, in cooperation with various departments of Washington University, the answers to many challenging questions are sought. The research program is described in more detail in the annual reports of the Research Department.



Central Institute is located in the Washington University Medical Center of St. Louis

ENTRANCE REQUIREMENTS

All students seeking admission should make application well in advance of the time set for registration, preferably before March 1. Application forms may be obtained from the Registrar of the Professional Education Program at Central Institute for the Deaf. There are no mid-year admissions.

UNDERGRADUATE

Of the two professional areas of concentration, only the Education of the Hearing Impaired is open to a limited number of undergraduates at the junior level. Students should make application well in advance of the junior year, preferably in the first semester of the sophomore year. Undergraduate applicants must successfully complete in the College of Arts and Sciences or University College of Washington University, or in any other accredited university or college, 60 semester units of preprofessional curriculum including:

English Composition	6 Units
Physical, Life Sciences (physics, chemistry, biology, mathematics, earth, planetary, general)	6 Units
Social, Behavioral Sciences (psychology, sociology, history, political science, economics, anthropology)	6 Units
Education (including education and psychology of exceptional children)	6 Units
Humanities (philosophy, classics, history, religious studies, art, music)	6 Units
Electives (additional courses in humanities, social science or physical sciences)	15 Units

History may satisfy either the Humanities or the Social Sciences requirement, but a given course may not satisfy both. Those who expect to apply for Missouri teacher certification should have included in their undergraduate college study specific courses to meet requirements as listed on page 4 in the section on GRADUATE study.

FOREIGN STUDENTS

Foreign students who qualify for the undergraduate or graduate degree programs will be considered for degree candidacy. One-year study programs, with the student not candidate for a degree, may also be pursued by foreign students. Such one-year programs may be taken with or without University credit, depending upon the needs and qualifications of the candidates.

All foreign students are required to present certification of financial support of at least \$12,500 before a visa eligibility certificate (Form I-20 or IAP-66) can be issued. Students from countries whose first language is not English must take the Test of English as a Foreign Language (TOEFL), administered by the Educational Testing Service in most countries, to demonstrate appropriate proficiency in English.

GRADUATE

Graduates of accredited universities or colleges are eligible to be considered for admission to the graduate programs in Audiology, Education of the Hearing Impaired, or in Communication Sciences. Applicants for a concentration in Audiology should have had college level physics and mathematics, but need not have had undergraduate work in Speech and Hearing.

Some states require background in regular education to qualify for credentials to teach hearing-impaired children. We recommend this experience before study here.

Grades in undergraduate study should average at least 2.5 on a 4.0 scale. However, not only grades but standard test scores, letters of recommendation and other evidence of professional promise are taken into account. The Graduate Record Examination (GRE) is required. Applicants are urged to take the examination early in the academic year preceding that for which admission is sought. Information and application forms are available at most colleges and universities or may be requested directly from the Educational Testing Service, Princeton, New Jersey 08540.

Applicants for a concentration in Education of the Hearing Impaired who expect to apply for Missouri teacher certification should have included in their undergraduate college study the following courses (one course = at least 2 semester hours):

Humanities One course each from two of the following fields: Music, Art, Philosophy, Literature, Classics, Drama, Foreign Language, Cultures.

Communication Skills Two courses in English composition, one course in Oral Communications.

Social Studies One course each in American History and American Government, and one course selected from among the following areas: Geography, Economics, Sociology, Anthropology, General Psychology.

Natural Science One course in Physical/Earth Science, one course in Biological Science.

Mathematics One course.

SPECIAL STUDENTS

A limited number of students from the United States will be considered for a one-year course of study individually tailored to respond to special interests of the student. Such students will not be considered candidates for a degree. They may audit or take courses for 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 one or more of the other areas, and persons 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 and on their stated objectives in pursuing continuing education.

FEES AND EXPENSES

TUITION

An application fee of \$25 is required upon filing for all applicants. Tuition for each year (1988-89, 1989-90) is \$4,800 payable as follows: \$200 initial payment upon acceptance for admission, \$2,200 at the opening of the first semester, and \$2,400 at the beginning of each subsequent semester. For part-time students tuition is charged at the rate of \$250 per semester unit.

All checks should be payable to Central Institute for the Deaf.

If the 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 reason of poor health or other extenuating circumstances: the decision as to the amount of refund in the latter case to rest with the administrative officers of the college.

Candidates for a degree at Washington University are required to participate in the health insurance plan at the University. Fees vary from year to year. An outlay of from \$400 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 approximately half of the actual cost with the other half provided by Central Institute through contributions. Housing and food services are available on the CID campus at non-profit rates. Opportunities for self-help through employment at the Institute include extra-curricular 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 Institute annually provides a limited number of tuition remission scholarships for students. A CID Professional Alumni Scholarship is given each year.

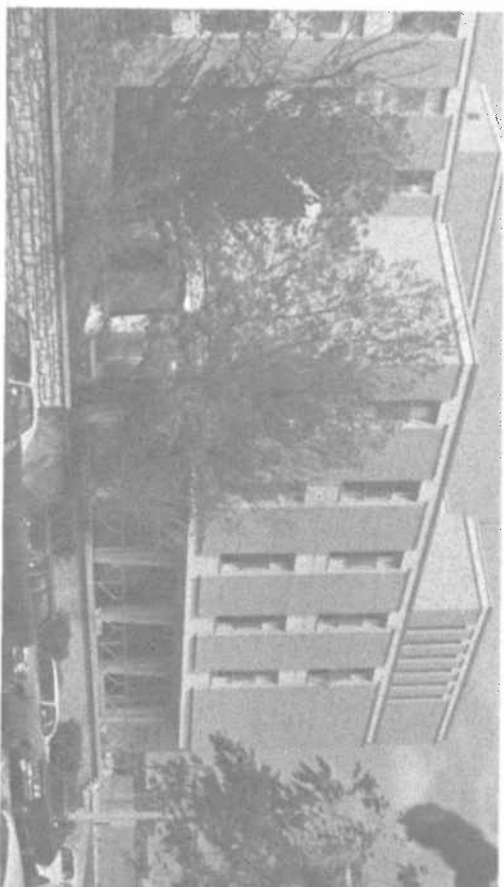
AWARDS

The Antoinette Frances Dames Awards for graduate students are made annually to graduating students for outstanding scholarship, as judged by the faculty. In the academic year 1986-87 two awards of \$300 each were made. These awards are made possible through a bequest to Washington University from Antoinette Frances Dames.

The Max A. Goldstein Award is made annually to the first-year student judged by the faculty to combine academic excellence and professional promise. In the academic year 1985-86 the award amounted to \$500. It is made available by contributions to Central Institute.

HOUSING

A limited number of rooms is available in the Central Institute Residence Hall. The Institute assumes no responsibility for finding housing for those who do not live in the Residence Hall. The student is advised to consult the Housing Office at Washington University for assistance in finding off-campus housing.



The following rates for accommodations are available in the Residence Hall during the 1988-89 and 1989-90 academic years:

Double rooms \$2,300/student/year Single rooms \$2,700/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 \$100.00 is required and will be credited to the second semester account. Payments are to be one-half of rate at the beginning of each semester. A security deposit of \$50.00 and a key deposit of \$20.00 is payable on entrance; it is refundable at termination of residence, subject to check for room damage.

MEALS

The cafeterias and other eating facilities of the Medical Center are within walking distance of the Institute. Meals in the Institute's school dining room are available to students at the following rates:

Full Board	\$900 per semester
Breakfast only	\$225 per semester
Lunch only	\$225 per semester
Dinner only	\$450 per semester (main meal)

Contracts for meals are made for the full semester. Combination of any two meals may be purchased. Payments are to be 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 and mid-winter vacations.

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. The Institute was a pioneer in this area of specialized professional education and played a major role in developing educational methods and standards. In February, 1931, the Teacher Training College of Central Institute 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, 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 to lead to the degrees of Master of Science in Speech and Hearing and Master of Arts in Speech and Hearing. The latter is now offered as Master of Arts in Communication Sciences. The curriculum for the Ph.D. in Audiology, now Communication Sciences, was established in September, 1947.

The education program of Central Institute now comprises the Department of Speech and Hearing of the University. 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. The Institute is located in and is a member of the Washington University Medical Center.

The Institute houses one of the outstanding libraries in the nation devoted to speech, hearing and related fields. The libraries of Washington University are also available to registered students. The Max A. Goldstein collections show the evolution of non-electrical and electrical hearing aids, and first editions of rare books, some dating to the 15th century, are available in the archives of the Washington University School of Medicine.

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 program in Audiology is accredited by the Educational Standards Board (ESB) of the American Speech-Language-Hearing Association.

RECREATION

The City of St. Louis affords excellent opportunities for recreation and cultural activities. The renowned St. Louis Symphony, live theatre, the attractions of the Jefferson National Expansion Memorial on the river front, and major sports events are available. The location of the Institute adjoining Forest Park places facilities for tennis, walking, cycling, golf, skating and riding at the easy disposal of the student. The park also contains an outstanding zoo, an excellent art museum and the St. Louis Science Center. I.D. cards entitling students to the use of the facilities of Washington University are available without cost to the student.

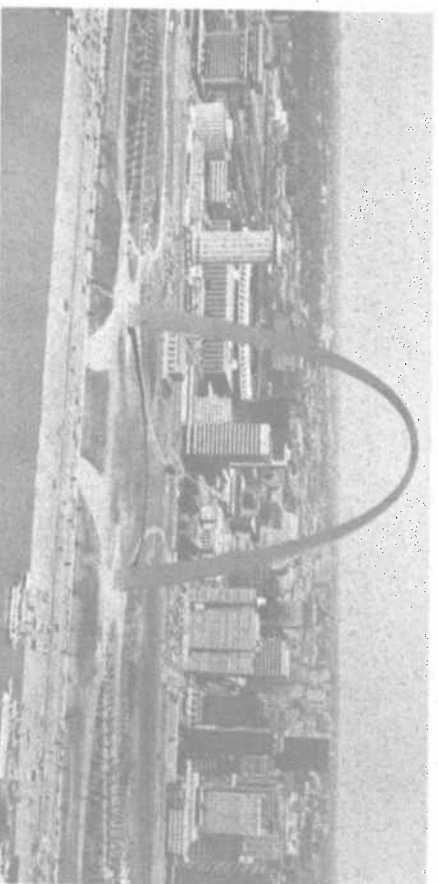
GENERAL PLANS OF INSTRUCTION

PROFESSIONAL EDUCATION PROGRAM

The program proceeds from broadly based instruction and observation to progressively more specialized coursework and practicum. Except in special cases, the requirement for the professional program is two years (four semesters) in academic residence. In each successive semester there is a reduction in time spent in courses and an increase in time spent in practicum. Availability on the premises of research laboratories, a school for hearing-impaired children, and associated hearing, language and speech clinics provide a desirable balance between theory and practice. The clinics are accredited by the American Speech-Language-Hearing Association. The student is given an on-the-premises opportunity to put into practice under competent supervision what he has observed and studied. In addition to opportunities for practice at the Institute, the clinics of Children's Hospital, of Barnes Hospital, St. Louis Hearing and Speech Center, and the Jewish Hospital of St. Louis are available. Both curricular sequences (Audiology and Education of the Hearing Impaired) involve ample provision for experience in the management of groups of children. Since the Institute School includes children in residence, important responsibilities devolve upon students as guides and counselors.

COMMUNICATION SCIENCES PROGRAM

All candidates for degrees in this program are selected by a Communication Sciences Committee that consists of members of the Central Institute Research Department, and the laboratories of the Institute are the focus of instruction. Courses in other departments of the University relevant to the study of speech, language and hearing may be selected to prepare the candidate in such areas as biophysics and neurophysiology of hearing, acoustics and electroacoustics, psychoacoustics, speech and phonetics, psycholinguistics, statistics, and research applied to audiology and education of the hearing impaired. Candidates develop basic knowledge in all these fields and demonstrate expertise in one selected area. A research program is developed through a proposal presented by the candidate to his faculty committee which culminates in a thesis or dissertation.



The St. Louis riverfront, Arch, stadium and downtown business district.

PROGRAMS OF STUDY

The unit of credit in the Speech and Hearing Department is the semester hour. Courses numbered in the 300 series carry undergraduate credit. Courses numbered 400 carry graduate credit and may be taken by either undergraduate and graduate students. Courses numbered 500 or higher are open only to graduate students, or to undergraduates with special permission. The subject areas of courses with three-digit designations are as follows:

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

Undergraduate students who are candidates for the B.S. in Speech and Hearing must complete a minimum of 120 units.

The M.A. candidate is expected to complete 30 units of graduate credit and an acceptable thesis. Candidates for the M.S. in Speech and Hearing must complete a minimum of 33 units of graduate credit and the prescribed professional curriculum. (See pages 10 or 11.) At least 6 units of credit must be elected from courses in the 500 series, open only to graduate students. The M.S. candidate is expected to do some independent work, not necessarily of an experimental nature. An oral examination, usually taken in the final semester, is required of all candidates for a graduate degree.

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

Candidates for the M.S. in Speech and Hearing or M.A. in Communication Sciences must complete the requirements for that degree within a four-year period, and candidates for the Ph.D. in Communication Sciences within a period of seven years. Exceptions may be made in individual cases where the student has been continuously engaged in the field of work in which the degree is to be taken.

All programs of study must be approved by the Department and, in the case of graduate students, by the Dean prior to registration. Students may elect courses from other related departments at Washington University. Information can be found in the appropriate bulletins (College of Arts and Sciences, University College, Graduate School of Arts and Sciences) of the University. Students are assigned Faculty advisors of the Speech and Hearing Department whose interests are related to the student's area of concentration. Students must maintain satisfactory academic and professional progress. The administrative officers reserve the right to dismiss a 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

	First Semester	Semester Units
311	Child Management and Development	1
401	Anatomical and Physiological Bases of Speech and Hearing	3
431	Descriptive Phonetics	3
435	Language, Its Development and Impairment	3
451	Language and Reading for Hearing-Impaired Children	3
463	Introduction to Audiology	3
Second Semester		
312	Child Management and Development	1
416	Evaluation Techniques for the Hearing and Language Impaired	3
436	Introduction to Manual Communication (May post-session)	1
452	Language for Hearing-Impaired Children	3
454	Educational Curricula for Hearing-Impaired Children	3
458	Speech for Hearing-Impaired Children	3
466	Rehabilitative Audiology	3
Third Semester		
313	Child Management and Development	1
351	Practicum - Education Hearing Impaired	4
455	Educational Curricula for Hearing-Impaired Children	3
457	Management of Parents and Young Hearing-Impaired Children	3
Fourth Semester		
314	Child Management and Development	1
352	Practicum - Education Hearing Impaired	4
433	Acoustical Phonetics and Speech Perception	3
450	History and Trends in Education of Hearing-Impaired Children	2
4561	Psychological and Sociological Characteristics of the Hearing Impaired	2
570	Independent Study (required for M.S. candidates)	1-6

Recommended Electives		
414	Hearing	3
421	Introduction to Electroacoustics	3
518	Seminar in Psychology of the Hearing Impaired	3
5301	Seminar in Language Pathology	3
5401	Seminar in Speech Pathology	3
550	Seminar in Education of Hearing-Impaired Children	3
571-572	Readings in Speech and Hearing	2 - 2

Audiology

First Semester	Semester Units
311 Child Management and Development	1
401 Anatomical and Physiological Bases of Speech and Hearing	3
421 Introduction to Electroacoustics	3
431 Descriptive Phonetics	3
435 Language, Its Development and Impairment	3
463 Introduction to Audiology	3
Second Semester	
312 Child Management and Development	1
414 Hearing	3
436 Introduction to Manual Communication (May post-session)	1
466 Rehabilitative Audiology	3
562 Hearing Evaluation and Diagnosis	3
Third Semester	
313 Child Management and Development	1
361 Practicum - Audiology	3
423 Applied Electroacoustics for Audiology	3
560 Seminar in Audiology-Hearing Aids	3
563 Hearing Evaluation and Diagnosis	3
Fourth Semester	
314 Child Management and Development	1
362 Practicum - Audiology	3
433 Acoustical Phonetics and Speech Perception	3
570 Independent Study (credit to be arranged)	1 - 6

Recommended Electives	Semester Units
416 Evaluation Techniques for the Hearing and Language Impaired	3
426 Communications Engineering and Signal Analysis	3
450 History and Trends in Education of Hearing-Impaired Children	2
4561 Psychological and Sociological Characteristics of the Hearing Impaired	2
457 Management of Parents and Young Hearing-Impaired Children	3
458 Speech for Hearing-Impaired Children	3
511 Seminar in Hearing	3
518 Seminar in Psychology of the Hearing Impaired	3
5301 Seminar in Language Pathology	3
5401 Seminar in Speech Pathology	3
550 Seminar in Education of Hearing-Impaired Children	3
566 Advanced Hearing Evaluation and Diagnosis	3
571-572 Readings in Speech and Hearing	2 - 2

DESCRIPTION OF COURSES

Speech and Hearing

- 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. Three class hours a week. Credit 3 units. Identical with Psychology 234, Linguistics 234, Education 234.
- 311-12-13-14 Child Management and Development** Rajtar, Staff
Background on general child development and management techniques with groups of hearing-impaired children in recreational, physical education and other activities outside of the classroom. Lectures, discussion, and practicum requiring work with children. Credit 1 unit each semester.
- 351-352 Practicum - Education Hearing Impaired** Moog, Staff
Supervised practicum in Education of the Hearing-Impaired. Credit 4 units each semester.
- 361-362 Practicum - Audiology** Popelka, Staff
Supervised practicum in Audiology. Credit 3 units each semester.
- 401 Anatomical and Physiological Bases of Speech and Hearing** Staff
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. Credit 3 units.
- 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. Three class hours a week. Credit 3 units. Identical with Psychology 431.
- 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 a week. Credit 3 units.

- 421 Introduction to Electroacoustics** Popelka
Principles of physical acoustics 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 a week. Credit 3 units.
- 423 Applied Electroacoustics for Audiology** Niemoeller
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 a week. Credit 3 units.
- 426 Communications 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 a week. Credit 3 units.
- 431 Descriptive Phonetics** Calvert
Description and analysis of speech. Basic physiologic and acoustic phonetics, including systems of orthography. Three class hours a week. Credit 3 units. Identical with Linguistics 431.
- 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. Prerequisite: Speech and Hearing 431, 463, or permission of instructor. Three class hours a week. Credit 3 units. Identical with Linguistics 433 and Psychology 438.
- 435 Language, Its Development and Impairment** Weisenberger
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 is 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. Three class hours a week. Credit 3 units. Identical with Linguistics 435.
- 436 Introduction to Manual Communication** Staff
Analysis of finger-spelling and comparison of sign systems used by deaf persons. Review of related literature and research. Lectures, demonstration, readings. Fifteen class hours in the post-session period (mid-May). Credit 1 unit.

- 450 History and Trends in Education of Hearing-Impaired Children** Calvert
Lectures and discussion of the history, trends, issues and philosophical approaches to education of hearing-impaired children. Two class hours a week. Credit 2 units.
- 451-452 Language and Reading for Hearing-Impaired Children** Moog, Staff
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 a week. Credit 3 units each semester.
- 454-455 Education Curricula for Hearing-Impaired Children** Kupper, Staff
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 a week. Credit 3 units each semester.
- 4561 Psychological and Sociological Characteristics of the Hearing Impaired** Kuehn
Lectures and discussion of the psychological and sociological characteristics of the hearing-impaired population. Two class hours a 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 a week. Credit 3 units.
- 458 Speech for Hearing-Impaired Children** Stein, Staff
Development, improvement and maintenance for hearing-impaired children through multi-sensory approaches. Articulation, voice and rhythm patterns are considered. Lectures, demonstrations and practice. Prerequisite: Speech and Hearing 431 or equivalent. Three class hours a week. Credit 3 units.
- 463 Introduction to Audiology** Staff
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 a week. Credit 3 units.
- 466 Rehabilitative Audiology** Pascoe, Staff
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. Application in both clinical and classroom settings. Demonstrations and laboratory sessions. Three class hours a week. Credit 3 units.

- 501 Seminar in Physiology of Hearing** Miller, Staff
Experimental and theoretical issues in auditory physiology. Particular topics change from year to year. Prerequisite: permission of instructor. Three class hours a week. Credit 3 units (alternate years).
- 503 Independent Work in Auditory Physiology** Staff
Credit to be arranged. Available either semester.
- 511 Seminar in Hearing** Miller, Staff
Discussion of topics, selected year by year, in hearing, auditory perception and speech perception. Three class hours a week. Credit 3 units. Identical with Psychology 555.
- 513 Independent Work in Psychoacoustics** Staff
Credit to be arranged. Available either semester.
- 518 Seminar in Psychology of the Hearing Impaired** Staff
Discussion of the effect of a hearing impairment on the behavior of hearing-impaired persons, 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 per week. Credit 3 units.
- 521 Independent Work in Electroacoustics** Niemoeller
Credit to be arranged. Available either semester.
- 5301 Seminar in Language Pathology** Staff
Lecture, reading and discussion in the nature, diagnosis and treatment of various pathologies of language, other than those associated with hearing impairment. Three class hours a week. Credit 3 units (alternate years with 5401).
- 5401 Seminar in Speech Pathology** Staff
Lecture, reading and discussion in the nature, diagnosis and treatment of various pathologies of speech, other than those associated with hearing impairment. Three class hours a week. Credit 3 units (alternate years with 5301).
- 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 a week. Credit 3 units.
- 553-554 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 to 3 units each semester.

560 Seminar in Audiology-Hearing Aids Pascoe
Lecture, reading and discussion of electroacoustic measurements, history and methods of hearing aid selection procedures. Three class hours a week. Credit 3 units.

562-63 Hearing Evaluation and Diagnosis Popelka, Staff
Analysis of clinical tests of auditory function, expected results associated with different anatomical sites of dysfunction. Principles of selection and interpretation of tests, infancy through adulthood, including brain stem responses. Prerequisite: Speech and Hearing 463. Three class hours a week. Credit 3 units each semester.

566 Advanced Hearing Evaluation and Diagnosis Staff
Discussion and practice with complex tests of auditory function. Prerequisite: Speech and Hearing 562 and 563 or equivalent. Three class hours a week. Credit 3 units.

570 Independent Study Staff
1-6 units, credit to be arranged. Available either semester.

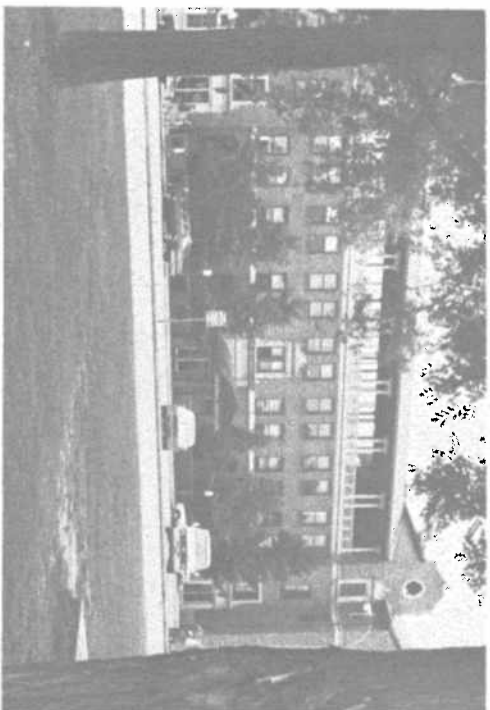
571-72 Readings in Speech and Hearing Clark
Critical discussion of professional periodicals and current books dealing with speech and hearing disorders and related fields. Two class hours a week. Credit 2 units each semester. May be taken either or both semesters.

Not all of the above courses are offered annually. Course offerings will depend on demand. The Department reserves the right to cancel courses.



ADMINISTRATIVE OFFICERS

- William H. Danforth, M.D. Chancellor Washington University
- Martin H. Israel, Ph.D. Acting Dean, Faculty of Arts and Sciences
Washington University
- Edward N. Wilson, Ph.D. Dean, Graduate School of Arts and Sciences
Dean, University College
Washington University
- Donald R. Calvert, Ph.D. Director of Central Institute
Chairman, Department of Speech and Hearing
- William W. Clark, Ph.D. Chairman, Graduate Program in
Communication Sciences
Department of Speech and Hearing
- Cathy Eckenrod Registrar, Professional Education
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FACULTY

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- David P. Pascoe, Ph.D. Associate Professor of Audiology
- Gerald R. Popelka, Ph.D. Professor of Audiology
- Ellen L. Raitar, M.S. Lecturer in Education of Hearing Impaired
- Martin S. Silverman, Ph.D. Assistant Professor of Physiology
- Margaret W. Skinner, Ph.D. Assistant Professor of Audiology
- Karen S. Stein, M.A. Ed. Assistant Professor in Education of Hearing Impaired