

Communication Sciences and Disorders

Chair

- Jerald B. Moon

Undergraduate major: speech and hearing science (B.A.)

Undergraduate minor: communication sciences and disorders

Graduate degrees: M.A. in speech pathology and audiology; Au.D.; Ph.D. in speech and hearing science

Faculty: <https://clas.uiowa.edu/comsci/people>

Website: <https://clas.uiowa.edu/comsci/>

The courses and degree programs of the Department of Communication Sciences and Disorders are planned to meet the needs of students preparing for careers in clinical service, college and university teaching, and research concerned with speech, language, or hearing processes and disorders. The department also offers courses for students with vocational and professional goals in other fields—for example, engineering, psychology, education, speech, theatre arts, dentistry, and medicine—whose preparation may be enriched by the study of speech and hearing processes and their disorders.

Advanced degree holders in communication sciences and disorders provide clinical services for people with speech, hearing, or language problems in hospitals, community clinics, rehabilitation facilities, elementary and secondary schools, and private practice. They teach in colleges and universities and conduct research in laboratories concerned with communication processes and disorders.

The department's programs leading to the M.A. with professional emphasis and the Au.D. are accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association (ASHA).

Programs

Undergraduate Programs of Study

Major

- Major in Speech and Hearing Science (Bachelor of Arts)

Minor

- Minor in Communication Sciences and Disorders

Graduate Programs of Study

Majors

- Master of Arts in Speech Pathology and Audiology
- Doctor of Audiology
- Doctor of Philosophy in Speech and Hearing Science

Facilities

Clinical Facilities

The clinical training program benefits greatly from Iowa City's standing as the most comprehensive health sciences center in Iowa and from the ready availability of health service facilities for clinical training of students in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the Wendell Johnson Speech and Hearing Clinic; the division of speech and hearing in University of Iowa Hospitals and Clinics (UIHC) Department of Otolaryngology—Head and Neck Surgery; UIHC Consolidated Speech and Swallowing Services, which provides services to the Departments of Neurology, Child Psychiatry, and Otolaryngology—Head and Neck Surgery; speech and hearing services in the Center for Disabilities and Development; and the audiology and speech pathology service in the Iowa City VA Health Care System.

The Wendell Johnson Speech and Hearing Clinic serves the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs for speech, voice, swallowing, hearing, and language problems; intensive summer camps in stuttering, a six-week summer preschool program for hearing-impaired children, and group therapy for children working on speech sounds. These clinical programs give students supervised clinical experience with a wide variety of speech, hearing, and language disorders.

In addition to the clinical training in the Wendell Johnson Speech and Hearing Clinic, training also may be acquired in supervised clinical practice with elementary school children through various state area education agencies; and in supervised clinical practice in speech, language, and hearing services provided by University of Iowa Hospitals and Clinics Consolidated Speech and Swallowing Services, the Regional Child Health Specialty Clinics, Center for Disabilities and Development, and the Iowa City VA Health Care System.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities

Facilities in the Wendell Johnson Speech and Hearing Center include audiometric testing suites, diagnostic and remediation suites, equipment for diagnosis and therapy, a classroom video recording system, and laboratories and equipment for acoustic, physiologic, and perceptual studies of speech, and for audiologic, psychoacoustic, and neurophysiologic studies of hearing.

Cooperation with departments in the Carver College of Medicine, the Department of Psychological and Brain Sciences, and the University of Iowa DeLTA Center makes additional laboratory facilities available for research on problems in speech and hearing. The participation and cooperation of specialists from varied fields, including psychology, child development, education, engineering, statistics, and medicine, further broaden the scope of research activities in speech and hearing.

Courses

Communication Sciences and Disorders Courses

- CSD:1000 First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.
- CSD:1001 CLAS Master Class** 1-3 s.h.
Exploration of a single topic in a series of lectures by faculty presenting divergent perspectives; illuminates intellectual adventure inherent in liberal arts and sciences; encourages discovery of majors and other areas of study within the College of Liberal Arts and Sciences. Same as ARTS:1001, BIOC:1001, CLAS:1001, CS:1001, ENGL:1001, HIST:1001, PHIL:1001, RELS:1010, THTR:1001.
- CSD:1015 Introduction to Speech and Hearing Processes and Disorders** 2 s.h.
Introduction to communication sciences and disorders field; clinical and research works; wide range of readings; survey course with less emphasis on specific disorders.
- CSD:1200 Intellectual and Developmental Disabilities** 3 s.h.
Introduction and overview of issues pertaining to children and adults with intellectual or developmental disabilities (IDD); focus on their communication needs, relationship with the broader community, and careers which serve this population; interaction with individuals with IDD, their family members, professionals; lifespan and health issues, genetics, diagnosis, literacy, historical perspectives, adaptive arts and theater, disabilities in the media, social life and sexuality, issues specifically relevant to aging, and controversial topics.
- CSD:1800 Aging Matters: Introduction to Gerontology** 3 s.h.
Overview of the field of gerontology from a bio-psycho-social framework; how the human body and brain age, effects of these biological changes on physical and cognitive functions, and interaction of these individual factors with societal contexts; broad perspective to give students a foundation in gerontology, paving the way for more advanced courses in biology of aging, psychology of aging, and global aging; for students from a wide range of disciplines and levels, no prior knowledge of aging required. GE: Social Sciences. Same as ASP:1800, NURS:1800, SSW:1800, TR:1800.
- CSD:2110 Phonetics: Theory and Applications** 3 s.h.
Basic concepts: articulatory and acoustic description of speech sound production, dialect variations, language differences; development of phonetic transcription skills with emphasis on English phonetics, clinical applications to developing and disordered speech. Offered fall semesters.
- CSD:2111 Basic Acoustics for Speech and Hearing** 3 s.h.
Principles of sound, simple harmonic motion, sound pressure and intensity, decibels, complex waves, Fourier analysis, resonance and filters, distortion, transmission of sound. Requirements: completion of department math requirement.
- CSD:2140 Manual Communication** 1 s.h.
Training in use of sign systems in manual communication.
- CSD:3097 Honors Seminar** 2 s.h.
Research topics and procedures in speech and hearing sciences; ongoing faculty research, research opportunities, possible research projects. Requirements: honors standing with intent to complete an honors thesis.
- CSD:3102 Basics of Hearing for the Non-Major** 3 s.h.
Hearing is fundamental to successful functioning in life, yet few people understand the fundamentals of hearing, or the typical causes of hearing loss, such as excessive exposure to loud music; overview of mechanisms, breakdowns, and different rehabilitation options; beneficial for classroom teachers or healthcare professionals who work with hearing loss populations.
- CSD:3112 Anatomy and Physiology of Speech Production** 4 s.h.
Normal anatomy, physiology of structures used to produce speech; principles, methods for instrumental study of speech production. Offered spring semesters.
- CSD:3113 Introduction to Hearing Science** 4 s.h.
Normal auditory process; anatomy and physiology of auditory system; subjective correlates of auditory stimuli. Offered spring semesters.
- CSD:3116 Basic Neuroscience for Speech and Hearing** 3 s.h.
Basic anatomy, physiology of central nervous system; emphasis on neural systems involved in normal and disordered communication. Offered fall semesters. Requirements: biology, zoology, or physiology course. Same as LING:3116.
- CSD:3117 Psychology of Language** 3 s.h.
Theoretical, empirical investigations of linguistic behavior; behaviorist, rationalist models in context of formal linguistic structure and context of models of speech perception and production. Offered spring semesters. GE: Social Sciences. Same as LING:3117.
- CSD:3118 Language Acquisition** 1-3 s.h.
Models of children's language acquisition; child language/communication development from infancy through school age, in context of current developmental research. Offered spring semesters. Requirements: for CSD:3118—LING:3001 and PSY:1001; for LING:3118—LING:3001 or LING:3117. GE: Social Sciences. Same as LING:3118.
- CSD:3122 Speech Production: Anatomy and Physiology** 4 s.h.
Anatomy and physiology of respiratory, phonatory, and articulatory systems; systems' roles during speech production; approaches to instrumental assessment of speech physiologic events. Requirements: non-major.
- CSD:3127 Introduction to Psycholinguistics** 3 s.h.
Theoretical and empirical investigations of linguistic behavior in the context of formal linguistic structure, models of speech perception and production; readings of text and research papers; audio-visual demonstrations of classical speech perception and production phenomena.
- CSD:3185 Hearing Loss and Audiometry** 3 s.h.
Introduction to profession of audiology; overview of hearing disorders, evaluation, treatment; basic pure-tone and speech audiometry. Offered fall semesters.

- CSD:3187 Early Literacy Instruction for Young Children** 3 s.h.
Service-learning involving lecture, class discussion, and student participation in an early literacy program for preschoolers; concepts and skills necessary to conduct story time groups with young children that target development of print knowledge; application of learning by reading to small groups of preschool children. Recommendations: CSD:3118.
- CSD:3993 Research Practicum** arr.
Individual or small group participation in faculty research projects.
- CSD:4098 Honors Thesis** 2 s.h.
Close work with a faculty mentor.
- CSD:4114 Introduction to Voice Disorders** 2 s.h.
Basic foundations for management of voice disorders. Offered spring semesters.
- CSD:4115 Structural Disorders** 2 s.h.
Therapy approaches used to treat speech production and swallowing disorders associated with disorders that affect structure and physiology of the speech and swallowing mechanism; basic knowledge necessary for clinical practice by clinicians who do not specialize in management of patients with head and neck cancer, cleft palate, or neurological disorders. Offered fall semesters.
- CSD:4120 Clinical Observations in Communication Disorders** 2 s.h.
Diagnosis and treatment of a wide range of speech, language, or hearing disorders in a variety of settings; basic understanding of the evaluation process, goal setting, behavior management, pacing of therapy, shaping of behavior, tracking performance/learning, and professional and ethical behavior through observation of clinical interactions; completion of 25 hours of observation as required by the American Speech-Language-Hearing Association for obtaining national certification. Recommendations: senior or graduate standing in communication sciences and disorders.
- CSD:4125 Clinical Spanish for Speech-Language Pathologists** 3 s.h.
Professional fluency in Spanish; focus on vocabulary and topics commonly encountered in speech and language pathology clinical setting; use of professional vocabulary to discuss research articles; administration of standardized assessments and therapy techniques in Spanish. Taught in Spanish. Requirements: completion or satisfaction of GE language requirement in Spanish through SPAN:1502, and at least one upper-level writing, speaking, or literature course in Spanish. Recommendations: advanced-level verbal and written competency in Spanish.
- CSD:4145 Developmental Language Disorders** 3 s.h.
Nature of developmental disorders; basic concepts including behavioral characteristics, developmental patterns, etiology theories; assessment and intervention principles in semantics, morphology, syntax. Offered fall semesters.
- CSD:4146 Neurogenic Disorders of Language** 3 s.h.
Overview of communication disorders secondary to acquired brain damage in adults; focus on aphasia, communication disorders arising from dementia, right-hemisphere stroke, traumatic brain injuries; general principles of diagnosis and intervention. Offered fall semesters.
- CSD:4147 Neurogenic Disorders of Speech** 2 s.h.
Speech disorders secondary to acquired brain damage in adults; clinical intervention issues. Offered spring semesters.
- CSD:4148 Developmental Speech Disorders** 3 s.h.
Review of typical phonological development in children; introduction to assessment and intervention practices for articulation and phonological disorders in children; may include apraxia, cerebral palsy, and cleft palate.
- CSD:4165 Communication Disorders and Aging** 2 s.h.
Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communication and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech-language pathologists and audiologists. Offered spring semesters of even years. Same as ASP:4165.
- CSD:4183 Introduction to Stuttering** 2 s.h.
Theoretical perspectives on the nature of stuttering, including onset and development, basic phenomena, beginning treatment principles. Offered spring semesters.
- CSD:4186 Problems: Speech/Hearing Processes and Disorders** arr.
- CSD:4244 Rehabilitative Audiology** 3 s.h.
Theory, procedures for assessment, rehabilitation of speech, hearing, language deficits of people with hearing impairment. Offered spring semesters.
- CSD:5104 Language Disorders in School-Aged Children** 3 s.h.
Emphasis on elementary grades; usually taken in conjunction with EDTL:4192, which provides approximately 70 hours of supervised clinical practice in elementary schools. Recommendations: primarily for communication sciences and disorders majors. Same as EDTL:5104.
- CSD:5135 Foundations of Clinical Practice I** 2 s.h.
Basic concepts of clinical practice, including models of diagnosis, fundamentals of clinical data collection and measurement, treatment planning, professional writing. Offered fall semesters. Corequisites: CSD:4145.
- CSD:5136 Foundations of Clinical Practice II** 1 s.h.
Advanced concepts of clinical practice, including principles of human behavior change, clinical decision making, generalization, transfer and maintenance, models of service delivery, ethical practice, advanced professional writing. Offered spring semesters.
- CSD:5137 Foundations of Clinical Practice III** 1 s.h.
Advanced principles of clinical practice, including risk management, public policy and models of third-party reimbursement, professional issues. Offered fall semesters.
- CSD:5201 Principles of Voice Production** 3 s.h.
Basic physical, physiological, pedagogical principles in understanding professional, nonprofessional, impaired voice production; vocal anatomy, voice classification; control of loudness, pitch, register, quality; efficient, inefficient use of voice; instrumentation for voice analysis, synthesis. Offered fall semesters of odd years. Same as MUS:5520.
- CSD:5203 Counseling in Communication Disorders** 1 s.h.
Development of appropriate intervention plans that meet client/patient needs in collaboration with client/patient and relevant others; communicating effectively and recognizing needs, values, preferred mode of communication, and cultural linguistic background of client/patient, family, caregivers, relevant others; providing counseling to clients/patients, family, and caregivers regarding communication and swallowing disorders.

CSD:5206 Language Disorders: Birth to Five Years 3 s.h.
Disorders resulting from phonological, semantic, pragmatic, and morphosyntactic deficits; receptive, expressive problems; special assessment and intervention procedures. Offered fall semesters of even years.

CSD:5213 Voice Habilitation 2 s.h.
Application of methods of intervention in development, training, rehabilitation of vocal behavior; motor learning, efficacy of treatment strategies, factors affecting compliance with recommended therapy. Offered fall semesters. Same as MUS:5555.

CSD:5219 Fundamentals of Laboratory Instrumentation 3 s.h.
Electrical circuits, emphasis on application to instrumentation used in speech and hearing; laboratory focus on instrumentation. Offered spring semesters.

CSD:5222 Speech and Hearing Anatomy 2 s.h.
Laboratory course in anatomy of speech and hearing mechanisms; instruction in dissection techniques. Offered summer sessions.

CSD:5223 Pediatric Feeding and Swallowing Disorders 1 s.h.
Development of anatomy and physiology of feeding and swallowing in infants and children; assessment and treatment of pediatric feeding and swallowing disorders. Offered summer sessions. Prerequisites: CSD:4115.

CSD:5224 System and Signal Theory for Speech and Hearing Science 2-3 s.h.
Principles of linear-systems theory applied to speech and auditory research, including system functions, filter properties, convolution, Fourier Series, Fourier transform. Offered fall semesters. Requirements: introductory calculus.

CSD:5233 Aphasia 2 s.h.
Assessment, diagnosis, and treatment of aphasia and other acquired language and cognition-based communication disorders. Offered spring semesters. Corequisites: CSD:5136.

CSD:5234 Acquired Cognitive-Communication Disorders arr.
Cognitive, neuropsychological, and social aspects of communication and the management of acquired cognitive-communication disorders associated with traumatic brain injury, right hemisphere damage, and neurodegenerative diseases.

CSD:5236 Swallowing Disorders 2 s.h.
Physiology of normal, abnormal swallowing; assessment, treatment of swallowing disorders in adults, children. Offered spring semesters.

CSD:5237 Cleft Palate and Related Disorders 2 s.h.
Nature, etiologies, principles of treatment of common disorders associated with cleft lip and palate, associated disorders. Offered fall semesters.

CSD:5240 Hearing Aids I 3 s.h.
Hearing aids, diagnostic procedures; laboratory emphasis on measurement procedures. Offered spring semesters.

CSD:5246 Advanced Audiology 3 s.h.
Theory, procedures for assessment of hearing loss in adult and pediatric populations; experience in test administration through supervised laboratory sessions. Offered fall semesters.

CSD:5253 Speech Perception in Listeners with Hearing Loss 1-2 s.h.
Introduction to study of speech perception in listeners with normal hearing and those with hearing loss; overview of speech acoustics; theories of speech perception; contributions of auditory, visual, and indexical (talker-specific) information in speech signal; assessment techniques; benefits of hearing aid and/or cochlear implant use; factors influencing speech perception by children and adults with hearing loss.

CSD:5255 Educational Audiology 2 s.h.
Training in skills necessary for working with the school-age population; case management and aural rehabilitation, amplification and classroom hearing technology, identification and assessment practices, federal legislation that affects services. Offered fall semesters. Requirements: CSD:5240 for Au.D. students.

CSD:5256 Anatomy and Physiology of Hearing 3-4 s.h.
Anatomy of auditory system, cochlear mechanics, electrophysiology of peripheral and central auditory nervous system; laboratory emphasis on physiological techniques for study of ear. Offered spring semesters.

CSD:5257 Auditory Processing Disorders 1-3 s.h.
Central auditory processing disorder (CAPD) as a disorder involving auditory processing and not showing as a hearing loss on routine screenings or an audiogram; theories of mechanisms and treatment.

CSD:5260 Designing Assistive Devices 1 s.h.
System design (hardware and software) useful in building augmentative and alternative communication devices for the profoundly impaired; opportunity to build systems for theoretical and/or applied purpose; interdisciplinary, clinical perspectives. Offered summer sessions.

CSD:5282 Phonological Development and Disorders 2 s.h.
Advanced topics in phonological development and disorders; current theoretical approaches to phonological analysis and typical phonological acquisition applied to assessment and intervention with children who have phonological disorders. Offered spring semesters.

CSD:5283 Clinical Problems 1-2 s.h.
Issues, approaches to treatment of children, adults. Offered summer sessions.

CSD:5301 Practicum: Speech-Language Pathology arr.
Supervised clinical practice. Corequisites: CSD:5135. Requirements: M.A. professional emphasis.

CSD:5303 Communication/Social Interaction for Individuals with Autism 1 s.h.
Evidence-based practices and emerging practices for promoting communication and social interaction skills in individuals with autism spectrum disorders; emphasis on intervention strategies specific to receptive and expressive language development, functional communication, social interaction, emotional regulation, play, structured learning environments, and opportunities.

CSD:5304 Speech Pathology Outplacement: School 0-4 s.h.
Supervised teaching and observation in speech-language pathology in an elementary school setting.

CSD:5305 Speech Pathology Outplacement: Non-School 0-4 s.h.
Supervised clinical work and observation in speech-language pathology in a non-school setting.

- CSD:5310 Scientific Writing** 3 s.h.
Principles of writing for scientific posters, journal articles, grant proposals; effective communication of concepts and data.
- CSD:5311 Clinical Practice in Audiology** arr.
Varied topics relevant to professional issues in audiology clinical practice; presentations by clinical faculty members and guest speakers. Requirements: M.A. professional emphasis or Au.D. enrollment.
- CSD:5314 Audiology Student Teaching** arr.
Supervised teaching and observation in an area of audiology in the elementary schools.
- CSD:5315 Clinical Rotations in Audiology** arr.
Supervised clinical practice in audiology. Corequisites: CSD:5311. Requirements: Au.D. second- or third-year enrollment.
- CSD:5350 Preceptorship in Augmentative Communication** 1-2 s.h.
Approaches to development of alternate modes of communication for individuals with limited oral communication. Offered fall semesters.
- CSD:5511 Introduction to Doctoral Research** 1 s.h.
Topics related to development and execution of research; doctoral program, use of library, human and animal subject issues, philosophy of science, use of common research tools, reading and writing research papers, research grant preparation. Offered fall and spring semesters.
- CSD:6101 Cognitive Science of Language Proseminar I** 3 s.h.
Survey of five major disciplines within language sciences: formal linguistic, communication disorders, psychological, neuroscience, and computational approaches. Requirements: graduate standing in communication sciences and disorders, linguistics, psychology, or neuroscience. Same as LING:6101, PSY:6101.
- CSD:6102 Cognitive Science of Language Proseminar II** 3 s.h.
Survey of five major disciplines within language sciences: formal linguistic, communication disorders, psychological, neuroscience, and computational approaches. Requirements: graduate standing in communication sciences and disorders, linguistics, psychology, or neuroscience. Same as LING:6102, PSY:6102.
- CSD:6202 Methods of Teaching Voice** 3 s.h.
Attitude, musicianship, foreign language aptitude, physical and emotional characteristics; mental images used to modify respiratory, phonatory, articulatory behavior; vocal hygiene; performance anxiety; student-teacher relationships; administration in vocal schools, professional organizations. Offered spring semesters. Same as MUS:6520.
- CSD:6204 Voice for Performers** 2 s.h.
Comparison of Kinesthetic techniques for singing and acting voice; relaxation, posture, breathing, tone quality, diction, interpretation. Same as MUS:6525, THTR:6525.
- CSD:6221 Instrumentation for Voice Analysis** 2 s.h.
Glottographic, videostroboscopic, electromyographic, and acoustic analysis for assessment of vocal and respiratory function; using these techniques in conjunction with perceptual evaluation of voice; through the Vocology Institute in Utah. Offered summer sessions of even years. Requirements: enrollment in Summer Vocology Institute, Salt Lake City, Utah. Same as MUS:6556.
- CSD:6230 Advanced Hearing Science** 2 s.h.
Basic properties of auditory perception or psychoacoustics from material covered in CSD:5256; perception of loudness, masking frequency selectivity, temporal processing, and spatial perception; basic perceptual properties, methods of measurement, and physiological basis for performance; properties of perception in normal ears, hearing impairment, and auditory prostheses (e.g., cochlear implants).
- CSD:6242 Hearing Aids II** 3 s.h.
Evaluation, verification procedures; emphasis on advanced technologies, strategies. Offered fall semesters.
- CSD:6245 Pediatric Audiology** 3 s.h.
Theory, procedures for assessment, rehabilitation of pediatric populations; laboratory emphasis on test administration. Offered spring semesters.
- CSD:6247 Medical Audiology** 2 s.h.
Genetic, acquired, traumatic pathologies that affect auditory systems; nature, etiology, principles of assessment, treatment. Offered spring semesters of odd years.
- CSD:6249 Cochlear Implants** 1-3 s.h.
Introduction to cochlear implantation; history of cochlear implantation, introduction to cochlear technology, basics of device programming and troubleshooting, candidacy issues, outcomes in children and adults, auditory rehabilitation specific to cochlear recipients, the auditory brainstem implant, future trends in cochlear implantation. Offered spring semesters.
- CSD:6290 Auditory Evoked Potentials** 3 s.h.
Introduction to evoked potentials for assessing audiologic function. Offered spring semesters.
- CSD:6291 Vestibular Assessment and Rehabilitation** 1-3 s.h.
Introduction to otoacoustic emissions, vestibular theory, and testing techniques. Offered fall semesters.
- CSD:6292 Advanced Rehabilitative Audiology** 1 s.h.
Current and developing procedures for assessment and habilitation of adults and children with hearing losses. Offered spring semesters.
- CSD:6316 Advanced Externship in Audiology** arr.
Advanced clinical externship in audiology. Requirements: Au.D. fourth-year enrollment.
- CSD:6317 Audiology Business Practice Management** 1 s.h.
Introduction to the development and management of an audiology practice; topics include short and long range business planning, general accounting, budgeting, establishing fees for service, coding and third party reimbursement, marketing, professional liability, certification and licensure; business and professional ethics. Requirements: 3.00 cumulative g.p.a. and Au.D. second-year or higher enrollment.
- CSD:6318 Hearing Loss Prevention** 2 s.h.
Incidence and prevalence of hearing loss; risk factors and assessment; noise exposure guidelines; hearing protection devices; education and motivation.
- CSD:6515 Proseminar** 0 s.h.
Presentation of research ideas, results by faculty, students.

CSD:6519 Seminar: Evidence-Based Practice 1-2 s.h.

Introduction to design and conduct of research and evidence-based clinical practice, observation and measurement, population sampling, group and single-subject research designs, treatment research, data organization and analysis, and presenting research results in graphic and written form; issues concerning research ethics and the protection of human subjects in research. Recommendations: clinical graduate standing in audiology or speech-language pathology.

CSD:6520 Seminar: M.A. Language 2 s.h.

Research literature related to language. Offered spring semesters of odd years.

CSD:6522 Clinical Speech Physiology 2 s.h.

Current approaches to the study of speech physiology and application in clinical practice; focus on providing hands-on experiences with common instrumental approaches to studying speech physiology, developing an appreciation of the factors and limitations that must be considered in applying and interpreting the findings of these approaches clinically, and developing abilities to critically evaluate the literature in this area.

CSD:6524 International Service in Communication Disorders 0-2 s.h.

International service in communication and related disorders; foundational knowledge and project-based learning; cultural diversity, international speech-language pathology and audiology practices, disability and poverty, advocacy for individuals with communication and related disorders, staff-caregiver-parent training; required course for students who applied and are accepted for international service projects through the Department of Communication Sciences and Disorders.

CSD:6530 Seminar Language Acquisition on Multiple Time Scales 3 s.h.

Understanding native language acquisition by considering change over shorter (minutes, hours, days, weeks) and longer (months, years, decades) time spans; use of evidence concerning the language acquisition of individuals with childhood language impairments (specific language impairment and language learning disabilities) as these conditions allow a sort of natural experiment wherein learning and development across domains and across time can be "pulled apart." Requirements: Ph.D. enrollment.

CSD:6538 Seminar: Hearing Science 1 s.h.

Selected topics.

CSD:7238 Capstone Requirement 1 s.h.

Individual work with a faculty member on audiology topics; final Au.D. project. Offered spring semesters.

CSD:7590 Research arr.