

# Communication Sciences and Disorders

## Chair

- Eric J. Hunter

**Undergraduate major:** speech and hearing science (BA)

**Undergraduate minor:** communication sciences and disorders

**Graduate degrees:** MS in speech language pathology; AuD; PhD in speech and hearing science

**Graduate certificate:** multilingualism and culturally responsive practice

**Faculty:** <https://csd.uiowa.edu/people>

**Website:** <https://csd.uiowa.edu>

The courses and degree programs of the Department of Communication Sciences and Disorders are designed to meet the needs of students preparing for careers in clinical service, college and university teaching, and research concerned with speech, language, and/or hearing processes and disorders. Traditionally, this field was called audiology and speech pathology. 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, language, 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.

## 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

- Master of Science in Speech Language Pathology
- Doctor of Audiology
- Doctor of Philosophy in Speech and Hearing Science
- Certificate in Multilingualism and Culturally Responsive Practice

## 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 Health Care Department of Otolaryngology—Head and Neck Surgery; UIHC Consolidated Speech and Swallowing Services, which provides services to the Departments of Neurology and Otolaryngology—Head and Neck Surgery; child psychiatry speech and hearing services in the Center for Disabilities and Development; and the audiology and speech pathology service in the VA Iowa City Health Care.

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, language problems, and a full range of audiological services that include diagnostic and rehabilitative services. Intensive therapeutic summer programs for children and a variety of clinical programs provide students with supervised clinical experience with a wide variety of speech, hearing, and language disorders.

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

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

### Research Facilities

The Wendell Johnson Speech and Hearing Center includes faculty offices, research lab space for individual faculty members, classrooms, and shared lab space used for teaching. It also serves as the home for the Wendell Johnson Speech and Hearing Clinic. Research spaces are equipped with sound booths, computer labs, and a wide variety of equipment used for acoustic, physiologic, and perceptual studies of hearing, balance, speech, voice, language, and swallowing. The Wendell Johnson Speech and Hearing Clinic is a full-service training clinic that is equipped to serve individuals of all ages with speech, language, and hearing concerns. These facilities include multiple fully equipped audiometric testing suites and suites used for diagnosis and evaluation of individuals with speech, language, swallowing, hearing, and balance concerns. Video recording equipment is available, as are rooms designed specifically to allow for group instruction.

Collaboration 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, language, 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: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: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, and language differences; development of phonetic transcription skills with emphasis on English phonetics and clinical applications to developing and disordered speech.

#### **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 departmental math requirement (MATH:1440 or MATH:1460 or MATH:1850).

#### **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:3112 Anatomy and Physiology of Speech Production 4 s.h.**

Normal anatomy and physiology of structures used to produce speech; principles and methods for instrumental study of speech production.

#### **CSD:3113 Introduction to Hearing Science 4 s.h.**

Normal auditory process; anatomy and physiology of auditory system; subjective correlates of auditory stimuli.

#### **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.**

Introduction to scientific study of language use; language approached from a multidisciplinary perspective, integrating theories and methods of psycholinguistics, neuropsychology, and communication sciences and disorders. 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. 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:3119 Interdisciplinary Science of Sound and Hearing 3 s.h.**

Introduction to physics of sound, biology/psychology of hearing, and audio technology; theories and experimental methods; music, speech, and environmental sounds. Same as MUS:3055, PSY:3055.

#### **CSD:3185 Hearing Loss and Audiometry 3 s.h.**

Introduction to profession of audiology; overview of hearing disorders, evaluation, and treatment; basic pure-tone and speech audiometry.

#### **CSD:3993 Research Practicum arr.**

Individual or small group participation in faculty research projects.

#### **CSD:4029 Experiential Learning in Audiology 1 s.h.**

Students build a foundation of skills to develop in advanced degree program; for students interested in obtaining an AuD or learning more about audiology. Prerequisites: CSD:3185. Requirements: third- or fourth-year standing.

#### **CSD:4030 Experiential Learning: Community Engagement Through Communication and Literacy Programs 2-3 s.h.**

Designed for undergraduate students intending to pursue graduate-level professional preparation in speech-language pathology; following instruction, students will commit to local community activities focused on the implementation of programs involving Augmentative Alternative Communication (AAC), literacy, and other communication strategies for the remainder of the semester; preference will be given to third- and fourth-year students majoring in Communication Sciences and Disorders; contact the instructors for information about community activities planned for upcoming semesters. Recommendations: CSD:3118 and CSD:4145.

#### **CSD:4098 Honors Thesis 1-3 s.h.**

Close work with a faculty mentor.

**CSD:4120 Introduction to Clinical Methods and Observation****3 s.h.**

Observation of the diagnosis and treatment of a wide range of speech, language, or hearing disorders in a variety of settings; basic understanding of 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. Prerequisites: CSD:4145. Recommendations: senior or graduate standing in communication sciences and disorders.

**CSD:4130 Reducing Disparities and Inequities in Communication Sciences and Disorders****1 s.h.**

Discussion of diversity, equity, and inclusion in communication sciences and disorders field; historical perspectives as related to current practices. Recommendations: graduate standing in speech language pathology, or junior or senior standing in speech language pathology or audiology.

**CSD:4140 Manual Communication****1 s.h.**

Training in use of sign systems in manual communication.

**CSD:4145 Developmental Language Disorders****3 s.h.**

Nature of developmental disorders; basic concepts including behavioral characteristics, developmental patterns, and etiology theories; assessment and intervention principles in semantics, morphology, and syntax.

**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:4186 Problems: Speech/Hearing Processes and Disorders****arr.**

Independent readings or research experience through mutual arrangement between student and faculty; goals and requirements determined by participating faculty member.

**CSD:4244 Rehabilitative Audiology****3 s.h.**

Theory, procedures for assessment, and rehabilitation of speech, hearing, and language deficits of people with hearing impairment. Prerequisites: CSD:3185.

**CSD:4291 Statistical and Experimental Methods in Linguistics I****3 s.h.**

Introduction to basic experimental design; critical analysis of scientific claims; overview of common methods in experimental linguistics; research preparation and follow-up. Prerequisites: LING:3010 or LING:3020. Requirements: advanced standing in undergraduate linguistics program or graduate standing in linguistics. Same as LING:4291.

**CSD:4292 Statistical and Experimental Methods in Linguistics II****3 s.h.**

Introduction to statistics with emphasis on common data types in linguistics; coding in R. Prerequisites: LING:4291. Same as LING:4292.

**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:5114 Introduction to Voice and Resonance Disorders****3 s.h.**

Basic foundations for management of voice disorders. Prerequisites: CSD:3112.

**CSD:5115 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.

**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, and professional writing. Corequisites: CSD:4145.

**CSD:5136 Foundations of Clinical Practice II****1 s.h.**

Advanced concepts of clinical practice including professionalism, clinical decision-making, developing client-clinician alliance, examining biases and prejudices in clinical practice, and developing empathy.

**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.

**CSD:5146 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.

**CSD:5183 Introduction to Stuttering****2 s.h.**

Introduction to the nature and treatment of stuttering. Students learn basic concepts regarding foundational knowledge (basic phenomena, major theories, lived experience), holistic assessment, and client-centered intervention. Requirements: graduate standing.

**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:5204 Counseling in Audiology****1 s.h.**

Develop basic skills in the area of counseling, including, but not limited to, explaining diagnostic test results, impact of hearing loss on life, effective listening, and communication skills. Discuss variables that may impact a patient and their ability or decisions to receive care.

**CSD:5205 Counseling in Speech Language Pathology****1 s.h.**

Develop basic skills in counseling people with speech, language, and swallowing disorders. Topics and learning activities include basics of personal adjustment and strengths-based counseling; emotions of communication disorders; change readiness; mindfulness practices; and active listening micro-skills.

**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. Prerequisites: CSD:3112 and CSD:5114. Same as MUS:5555.

**CSD:5219 Fundamentals of Laboratory Instrumentation 2 s.h.**

Introduction to instrumentation commonly used in research in speech and hearing sciences; basic audiometric calibration.

**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.

**CSD:5224 System and Signal Theory for Speech and Hearing Science 3 s.h.**

Introduction to signals and systems with emphasis on their relevance to the fields of audiology and speech-language pathology. Requirements: introductory calculus.

**CSD:5233 Aphasia 2 s.h.**

Assessment, diagnosis, and treatment of aphasia and other acquired language and cognition-based communication disorders. Corequisites: CSD:5136. Requirements: CSD:5146 or a course that provides an overview of acquired language disorders.

**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 Neurological and Structural Disorders of Swallowing 3 s.h.**

Provides future speech-pathologists with a strong foundation for career-long learning about the nature and classification of neurogenic motor-speech and swallowing disorders, symptomatology, etiology, diagnosis, treatment, and management options.

**CSD:5237 Cleft Palate and Related Disorders 1-2 s.h.**

Nature, etiologies, and principles of treatment of common disorders associated with cleft lip and palate, associated disorders.

**CSD:5238 Motor Speech Disorders 2 s.h.**

Provides future speech-pathologists with a strong foundation for career-long learning about the nature and classification of neurogenic motor-speech disorders, symptomatology, etiology, diagnosis, treatment, and management options.

**CSD:5240 Hearing Aids 3 s.h.**

Hearing aids and diagnostic procedures; laboratory emphasis on measurement procedures.

**CSD:5246 Advanced Audiology 3 s.h.**

Theory and procedures for assessment of hearing loss in adult and pediatric populations; experience in test administration through supervised laboratory sessions.

**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 school-age population; case management and aural rehabilitation, amplification and classroom hearing technology, identification and assessment practices, federal legislation that affects services. Requirements: CSD:5240 for AuD students.

**CSD:5256 Anatomy and Physiology of Hearing 3-4 s.h.**

Anatomy of auditory system, cochlear mechanics, and electrophysiology of peripheral and central auditory nervous system; laboratory emphasis on physiological techniques for study of ear.

**CSD:5258 Multilingualism and Culturally Responsive Practice in Communication Sciences and Disorders 2 s.h.**

Trajectories of multilingual language acquisition in typical contexts and in context of communication disorders; connections between language, cognition, culture, and cultural-linguistic experiences to develop and apply culturally responsive speech and language assessment and intervention skills in context of cultural and linguistic diversity.

**CSD:5260 Augmentative and Alternative Communication 2 s.h.**

Theories, assessment, and intervention in augmentative and alternative communication (AAC) for individuals with severe communication disorders resulting from a variety of developmental and acquired conditions.

**CSD:5282 Clinical Phonology and Speech Sound 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.

**CSD:5284 Advanced Fluency Disorders 2 s.h.**

Fluency disorders and treatment approaches for children and adults.

**CSD:5301 Practicum: Speech-Language Pathology arr.**

Supervised clinical practice. Corequisites: CSD:5135.

Requirements: MA professional emphasis.

**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:5306 Speech-Language Pathology Multilingual/Multicultural Outplacement: School arr.**

Supervised multilingual and multicultural teaching and observation in speech-language pathology in an elementary school setting.



**CSD:5307 Speech-Language Pathology Multilingual/Multicultural Outplacement: Non-School** arr.

Supervised clinical work and observation in speech-language pathology in a multilingual and multicultural non-school setting.

**CSD:5308 Practicum: Speech-Language Pathology Multilingual/Multicultural** arr.

Supervised clinical practice for Multilingualism and Culturally Responsive Practice in SLP Certificate. Corequisites: CSD:5135. Requirements: MA professional emphasis.

**CSD:5309 Practicum: Speech-Language Pathology International** 2 s.h.

Supervised teaching and observation in speech-language pathology (SLP) in an international program. Classroom and clinical education in areas of SLP related to multilingualism, global understanding, historical and political context of a chosen country, and effective cross-cultural communication. Clinical experience includes opportunities to collaborate with local SLP students/SLPs or other partners to implement culturally responsive speech-language service delivery. Prerequisites: CSD:5135. Requirements: valid passport and ability to travel internationally.

**CSD:5310 Scientific Writing and Publishing** 2 s.h.

Develop advanced scientific writing skills needed for generating publishable manuscripts. Provides a space to critically engage with the writing process, offering opportunities to analyze and critique both their own writing and the writing of peers. Emphasis on iterative drafting, constructive feedback, and refining prose for clarity and impact. Requirements: PhD standing.

**CSD:5311 Advanced Clinical Topics in Audiology** 2 s.h.

Variety of professional issues important to clinical practice; incorporates professional and community engagement as well as service learning; topics directly related to clinical work and covered by clinical faculty and guest speakers with special expertise in each area; student presentations.

**CSD:5314 Audiology Student Teaching** arr.

Supervised teaching and observation in an area of audiology in the elementary schools. Corequisites: CSD:5315. Requirements: AuD first-, second-, or third-year enrollment.

**CSD:5315 Clinical Rotations in Audiology** arr.

Supervised clinical practice in audiology. Requirements: AuD first-, second-, or third-year enrollment.

**CSD:5317 Advanced Clinical Practice in Audiology** 1 s.h.

Various advanced clinical topics in audiology including professional issues and technical skills with a particular interest in culturally responsive practice.

**CSD:5318 Literacy: Emergent and School Aged** 1 s.h.

Examine literacy development from early emergent skills through the elementary years. Topics include phonological awareness, vocabulary development, print awareness, and reading and writing strategies. Assessment and intervention methods to support all learners will also be investigated.

**CSD:5319 Head and Neck Cancer and Instrumentation** 2 s.h.

Covers diagnostic procedures, instrumentation, treatment implications, and potential issues during cancer staging; reviews HNC risk factors, initial diagnostics, surgical and nonsurgical treatments, and treatment effects on functional outcomes. Instrumentation includes administering rigid and/or flexible laryngoscopy and stroboscopy for assessment of dysphonia and dysphagia. Flexible nasendoscopy for velopharyngeal port assessment may be included.

**CSD:5320 Applied Statistics and Principles of Evidence-Based Practice in Audiology** 3 s.h.

Combination of applied statistics and principles of evidence-based clinical practice with emphasis on applications in audiology and hearing science; review of statistical techniques widely used in audiology research including nonparametric and descriptive statistics, correlation, regression, and ANOVA; examples taken from studies published in scientific journals in communication sciences and disorders; principles of evidence-based practice that focus on topics and methods of establishing treatment efficacy, meta analyses, levels of evidence, and methods of assessing research quality. Requirements: introductory course in statistics.

**CSD:5321 Clinical Rotations in Audiology Multilingual/Multicultural** arr.

Under the direct supervision of a licensed and American Speech-Language-Hearing Association-certified audiologist, students work in various clinical settings with persons manifesting communicative problems. Evaluation, rehabilitation, and management of a variety of auditory and vestibular disorders; includes opportunities to work with multilingual/multicultural individuals. Requirements: AuD first-, second-, or third-year enrollment.

**CSD:5350 Seminar in Supervision** 1 s.h.

Process and procedures in clinical education and supervision in a graduate program.

**CSD:5415 Outplacement Clinical Supervised Rotations in Audiology** arr.

Under the direct supervision of a licensed and American Speech-Language-Hearing Association-certified audiologist, students work in various clinical settings that provide a range of audiology and vestibular services for individuals across the lifespan. Clinical experiences involve evaluation, rehabilitation, and management of a variety of auditory and vestibular disorders. Prerequisites: CSD:5315. Requirements: AuD second- or third-year enrollment.

**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, and research grant preparation.

**CSD:5525 Principles of Voice Production** 3 s.h.

Basic physical, physiological, and pedagogical principles required to understand professional, nonprofessional, and impaired voice production. Topics include vocal anatomy, vocal health, voice changes across the lifespan, voice classification, control of loudness, pitch, register, quality, respiration, phonation, resolution, and articulation, as well as efficient and inefficient use of both the singing and speaking voice. Same as MUS:5525.

**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 Voice Pedagogy** **3 s.h.**

History of voice pedagogy, various pedagogical techniques of voice training, vocal anatomy, voice classification, critical listening, postural alignment, managing breath, tonal production, connecting registers, articulation, interpretation, vocal health, pharmacological effects on the voice, vocal gadgets, requirements for a professional career, teaching in the 21st century, and teaching practicum; diagnosis and correction of vocal faults. Same as MUS:6520.

**CSD:6230 Psychoacoustics** **2-3 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:6240 Seminar in Audiology** **arr.**

Topics vary; for AuD and PhD students.

**CSD:6242 Hearing Aids II** **2 s.h.**

Evaluation and verification procedures; emphasis on advanced technologies and strategies.

**CSD:6245 Pediatric Audiology** **1,3 s.h.**

Theory and procedures for assessment and rehabilitation of pediatric populations; laboratory emphasis on test administration.

**CSD:6247 Medical Audiology** **2 s.h.**

Review of a wide range of pathologic conditions that have an impact on hearing; focus on understanding the underlying pathophysiology and how the disorder is diagnosed and treated.

**CSD:6249 Cochlear Implants** **1-3 s.h.**

Introduction to cochlear implants; history of cochlear implantation, introduction to cochlear implant technology, basics of device programming and troubleshooting, candidacy issues, outcomes in children and adults; auditory rehabilitation specific to cochlear implant recipients.

**CSD:6290 Auditory Evoked Potentials** **3 s.h.**

Introduction to the wide range of electrophysiologic measures of auditory function used in clinical practice.

**CSD:6291 Vestibular Assessment and Rehabilitation** **3 s.h.**

Introduction to vestibular anatomy, physiology theory, testing techniques, management, and rehabilitation.

**CSD:6292 Advanced Rehabilitative Audiology: Adult** **1 s.h.**

Current and developing procedures for assessment and habilitation of adults with hearing losses.

**CSD:6294 Advanced Rehabilitative Audiology: Pediatric** **1 s.h.**

Current and developing procedures for assessment and habilitation of children with hearing losses.

**CSD:6311 Professional Issues in Audiology** **1 s.h.**

Information on a variety of professional issues important to clinical practice; topics directly related to clinical work; written assignments required as a means for students to reflect on and share clinical experiences related to topics. Corequisites: CSD:6316.

**CSD:6312 Professional Issues in Audiology II and Capstone** **1 s.h.**

Information on a variety of professional issues important to clinical practice; topics directly related to clinical work; presentations, discussions, and written assignments required as a means for students to reflect on and share clinical experiences related to topics. Corequisites: CSD:6316. Requirements: AuD fourth-year enrollment.

**CSD:6316 Advanced Externship in Audiology** **arr.**

Advanced clinical externship in audiology. Corequisites: CSD:6311 or CSD:6312. Requirements: AuD fourth-year enrollment.

**CSD:6317 Audiology Practice: Business Start-Up** **1 s.h.**

Introduction to business aspects of developing and managing an audiology practice related to business start-up as well as short and long range business planning; presentation of topics by clinical faculty and guest speakers with special expertise in each area; student presentations.

**CSD:6318 Occupational Audiology** **1 s.h.**

Incidence and prevalence of hearing loss; risk factors and assessment; noise exposure guidelines; hearing protection devices; education and motivation.

**CSD:6319 Interprofessional Practice and Community Engagement in Communication Sciences and Disorders** **1 s.h.**

Advanced knowledge and experiences related to interprofessional education and practice (IPE/IPP) in communication sciences and disorders; IPE/IPP training focus on students' collaboration with multiple service providers from other professions to improve outcomes for individuals, families, and/or communities; presentation of topics by clinical faculty and guest speakers with special expertise in each area; student presentations.

**CSD:6515 Professional Seminar** **0 s.h.**

Weekly presentation of research projects, ideas, and clinical initiatives by faculty, students, and guests; required for PhD, AuD, and MA-SLP first-year graduate students.

**CSD:6519 Evidence-Based Practice** **2 s.h.**

Introduction to design and conduct of research and evidence-based clinical practice. Offered fall semesters. Recommendations: clinical graduate standing in audiology or speech-language pathology.

**CSD:6538 Advanced Topics in Speech, Language, and Hearing Research** **1 s.h.**

Varied topics related to auditory function, assessment, and rehabilitation; discussion based.

**CSD:6540 Grant Writing for Fellowship and Career Development Awards** **2 s.h.**

Equips students with the skills and knowledge necessary to develop competitive NIH pre-doctoral fellowship (F awards) and career development (K awards) applications. Key components of the NIH grant process, including identifying appropriate funding opportunities, tailoring proposals to align with NIH priorities, and writing the key sections of a training grant. Students work collaboratively with their mentors to craft the research plan as well as the mentoring and institutional support letters.

**CSD:7238 Capstone****1 s.h.**

Work with a faculty mentor to complete a project that focuses on an area of student's interest.

**CSD:7239 Multilingual/Multicultural Capstone 1-3 s.h.**

Work with a faculty mentor to complete a project that focuses on multilingualism and/or multiculturalism in speech-language pathology.

**CSD:7590 Research****arr.**

Individual laboratory research training in speech-language pathology or audiology.