CSD Catalog Descriptions
(Numbers in parentheses indicate course credit for courses other than 1 credit.)

100- and 200-Level Courses

CSD 108 Sound and Communication Health Introduction to communication sciences and disorders. Role of sound in basic human communication; hearing, speech, language, and learning mechanisms required to process and produce sound; assessment and treatment of disorders caused by a breakdown in sound processing. May not be taken with or after CSD 318-0, CSD 320-0, or CSD 373-0.

CSD 110 Introduction to Hearing and Speech Acoustics Introduction to acoustics, measurement of hearing, and the acoustical properties of speech sounds. Sound waves; standards of measuring magnitude; audiograms; source-filter theory; spectrograms.

CSD 112 The Scientific Exploration of Communication Introduction to biology and physics of human communication. Basic properties of speech sounds and how they are produced and received; relation between human anatomical structures involved in sound production, modulation, and reception; brain mechanisms of processing speech sounds.

CSD 202 Neurobiology of Communication Human anatomy, physiology, and neurology in relation to communicative behavior. Sensory, perceptual, cognitive, and motor processes.

CSD 205 Study of Learning and Learning Problems in the Classroom Study of children’s learning in classroom settings. Field placement, using informal assessments of social, cognitive, and communication functioning, for children with and without exceptionalities.

CSD 207 Seminar in Communication Sciences and Disorders Major topics of research interest in communicative disorders. Principles of research in communicative disorders.

300-Level Courses

CSD 301 Anatomy and Physiology of the Vocal Mechanism Anatomical and physiological mechanisms of breathing, phonation, and articulation. Laboratories include dissection and participation in physiological research. Prerequisite: sophomore standing or above.

CSD 302 Anatomy and Physiology of the Peripheral Hearing Mechanism Gross and fine structure; function of the peripheral auditory system. Prerequisites: junior standing or above, CSD 202-0, or consent of instructor.
CSD 303 Brain and Cognition  Neural bases of cognitive processing with emphases on neuroimaging approaches in the areas of encoding, perception, attention, memory, language, reading, motor control, and executive functioning. Taught with Psych 365-0; students may not earn credit for both courses.

CSD 304 Statistics in Communication Sciences and Disorders  Introduction to research design and data analysis in communication sciences and disorders; statistical inference.

CSD 305 Phonetics  Training in transcription of English speech sounds. Introduction to phonological analysis, dynamics of articulation, and dialect variations.

CSD 306 Psychoacoustics  Principles underlying perception of pitch, loudness, auditory space, auditory patterns, and speech. Psychophysical procedures for studying psychoacoustics and the impact of hearing impairment are considered.

CSD 309 Culture, Language, and Learning  Language and culture; transmission of culture through language; effects of cultural variety on perception, cognition, and learning; implications of cultural and linguistic diversity in communicative disorders.

CSD 310 Biological Foundations of Speech and Music  Anatomy and physiology of the central auditory pathway, experience-related neural plasticity, right/left brain specialization, audiovisual integration, auditory learning and perception, and neural encoding of speech and music. Crosslisted with CSD 410-0 and SAI 502-0. Prerequisite: junior standing or consent of instructor.

CSD 318 Introduction to Audiology  Introduction to the measurement of hearing in humans. Basic anatomy of the ear, measurement of hearing, potential disorders of hearing.

CSD 319 Aural Rehabilitation  Principles and practices in rehabilitation of children and adults, including use of sensory aids, counseling, communication remediation (emphasizing speech reading), and auditory training techniques.

CSD 320 Introduction to Speech, Language, Learning, and Their Disorders  Overview of normal and disordered communication. Speech, language, hearing, and cognitive development disorders and their psychosocial effects, across the age continuum according to etiology, clinical manifestations, and intervention. Anatomy and physiology of speech, language, and hearing. Service-delivery settings; ethical and legal considerations; professional issues.

CSD 332 Assisting in SLP  Introduction to clinical practice, the dynamics of the client-clinician relationship and general clinical protocol, and the development and execution of therapy goals and procedures. Prerequisites: CSD 392-0 and CSD 305-0, or consent of instructor.
CSD 334 Delivery Systems in Speech and Language Organization and administration of speech language pathology services in schools, health care agencies, and private practice.

CSD 339 Early Communication Intervention with Infants and Toddlers Models of service systems, current practices in early intervention, legislation, infant development processes, and risk factors. Emphasis on individual family service planning, assessment, and intervention.

CSD 342 Language and Cognition in Atypical Development Description and theory relevant to the cognitive, linguistic, and social development of individuals with different developmental disorders throughout the lifespan.

CSD 343 Family Systems: Theory and Intervention strategies in Early Intervention Models of family-systems theory and application pertaining to the functioning of families with disabled infants or toddlers. Intervention strategies appropriate for early-intervention professionals. Prerequisite: advanced status in developmental disabilities or consent of instructor.

CSD 369 Special Topics in Communication Sciences and Disorders Current scientific and professional problems in communication sciences and disorders. Topics vary by quarter.

CSD 373 Introduction to Learning Disabilities Psychological, neurological, and linguistic theories of language and learning as related to learning disabilities.

CSD 376 Diagnostic and Remedial Approaches for Children with Learning Problems Introduction to the field of learning disabilities and its theoretical perspectives, assessment, and instruction principles and to the process of clinical teaching. Emphasis on instruction, accommodation, service delivery, progress monitoring, and transition.

CSD 380 Introduction to Clinical Procedures in Learning Disabilities Practicum experience in clinical settings. Learning processes and application of instructional approaches. Field studies, reading, and weekly seminars. Prerequisite: CSD 376-0.

CSD 382 Autism Spectrum Disorders Overview of autism, focusing on its clinical presentation and potential causes, diagnosis, assessments for characterizing autistic features in research, evaluation (based on behavior, cognition, neuroimaging, and genetics) of theories of autism’s causes, and controversies (changing prevalence, myths about causation).

CSD 388 Attention Deficit Disorder and Related Disorders Identification and treatment of attention deficit disorders and related childhood behavior disorders. Emphasis on objective and subjective assessment, life-span issues, and medical and psychological interventions.
CSD 392 Language Development and Usage Development of spoken and written language as it relates to child development; includes phonological, morphological, syntactic, semantic, and pragmatic components. Cultural and individual linguistic diversity.

CSD 396-2 Advanced Diagnostic Procedures in Learning Disabilities (.5) This course is designed to teach students the skills necessary to perform evaluations of literacy and numeracy skills in individuals with learning disabilities and related disorders. Class will consist of a combination of lecture, demonstration, and discussion as well as specific test administration and evaluation procedures.

CSD 398-0 Research Practicum in Communication Sciences and Disorders (.5 or 1) Working with a faculty member on design, execution, and presentation of a research project. Activities may include a review of literature, design of an experiment, data collection, coding, analysis, and spoken or written presentation of experimental results.

CSD 399 Independent study (.5 or 1) Prerequisite: consent of undergraduate dean after submission of petition.

400-Level Courses

CSD 401 Signals, Systems and Acoustics for the Communication Sciences Introduction to the measurement, analysis and synthesis of acoustic signals.

CSD 402 Speech Perception Theories, issues, and major research findings in the field of speech perception.


CSD 405-1 Instrumentation and Methods for Psychoacoustics Hands-on psychoacoustic instrumentation and methods, including required technical background. Students will complete at least one project using techniques learned in the course. Prerequisites: CSD 306-0 or equivalent, and computer programming.

CSD 405-2 Advanced Psychoacoustics Development of an in-depth understanding of auditory filtering and temporal resolution in normal and hearing-impaired listeners, comodulation masking release and pitch perception, all viewed through models of the peripheral auditory system. Prerequisites: CSD 302-0, CSD 306-0, and CSD 405-1 or equivalents.
**CSD 406 Medical Aspects of Audiology** A series of modules on four medical aspects of audiology: embryology, genetics, molecular biology, and pharmacology/ototoxicity. Topics related to both the auditory and vestibular systems are covered within each module.

**CSD 407 Implantable Devices** Cochlear implants and other implantable hearing devices. Candidacy, device management, and performance with various devices.

**CSD 408-1 Business in Audiology** Legal, ethical, and governmental influences on the profession of audiology, applicable to all work settings and across all practice models. The audiologists role in healthcare, legal and ethical requirements, health codes, the importance of documentation, and rules and regulations of managed care. 1. Additional information on the history of audiology and the state licensure process. 2. Additional information on professional communication, managed care, business and marketing models, and creation of a business plan.

**CSD 408-2 Business in Audiology** Legal, ethical, and governmental influences on the profession of audiology, applicable to all work settings and across all practice models. The audiologists role in healthcare, legal and ethical requirements, health codes, the importance of documentation, and rules and regulations of managed care. 1. Additional information on the history of audiology and the state licensure process. 2. Additional information on professional communication, managed care, business and marketing models, and creation of a business plan.

**CSD 409-1,2,3,4,5,6,7,8 Foundations of Clinical and Professional Practice** Professional issues for audiologists, including professional communication, emotionally intelligent leadership, clinical decision-making theory and practice, critical thinking, and theoretical-clinical integration of knowledge and skills. 1. Introduction to the Profession. 2. Leadership. 3. Integration. 4. Critical Thinking. 5. Cross-Cultural Competency. 6. Alternate Delivery Models. 7. Ethics. 8. Supervision.

**CSD 410 Biological Foundations of Speech and Music** Anatomy and physiology of the central auditory pathway, experience-related neural plasticity, right/left brain specialization, audiovisual integration, auditory learning and perception, and neural encoding of speech and music. Crosslisted with CSD 310-0 and SAI 502-0. Prerequisite: junior standing or consent of instructor.

**CSD 411 Evaluation and Use of Amplification Systems** Electroacoustic characteristics of hearing aids, selection of individual and group amplification systems, and client management. Lecture and laboratory. Prerequisites: CSD 423-0 or consent of instructor.

**CSD 412 Scientific Writing** Principles of scientific writing for journals, dissertations, and grant proposals. Emphasis on mastering the structures for presenting concepts and data.
CSD 414 Advanced Topics in Amplification Advanced amplification, including alternatives to traditional hearing aids such as over-the-counter (OTC) amplification and personal sound amplification processors (PSAPs). Hearing assistive technology, and personal and group amplification options. Focus on adult device use.

CSD 415-1,2,3,4,5,6,7,8 Clinical Study and Practicum in Audiology Clinical experience in University and off-campus hearing clinics. Clinical practice in prevention of hearing loss in children and adults. Clinical policies and procedures for assessment of hearing; for selection, fitting and use of sensory aids, including assistive listening devices; and for remediation of hearing problems.

CSD 419 Pediatric Audiology Etiological factors; hearing screening and assessment; implications of hearing impairment in infants and young children; sensory aids; treatment programs; and parent counseling. Prerequisites: CSD 423-0 or consent of instructor.

CSD 420 Pathologies of the Auditory System Physiologic abnormalities of the auditory system that result in hearing impairments.

CSD 422 Anatomy and Physiology of the Central Hearing Mechanism Neuroanatomical and neurophysiological aspects of the central auditory pathway.

CSD 423 Evaluation of the Peripheral Hearing Mechanism Basic audiometric and immittance techniques; interpretation of test results. Introduction to amplification systems. Lecture and laboratory.

CSD 424 Evaluation and Treatment of Central Auditory Processing Disorders Neurobiological bases of Central Auditory Processing Disorders (CAPD), administration and interpretation of CAPD test measures, and remediation and management plans for patients diagnosed with CAPD.

CSD 425 Electrophysiology of the Human Auditory System Electrophysiology of the human auditory system, theory and practice. Relationship to hearing and perception in normal and clinical populations. Prerequisite: CSD 423-0 or equivalent.

CSD 427 Otoacoustic Emissions: Theory and Practice (.5) Theoretical and practical considerations of otoacoustic emissions; clinical applications; interpretation of test results. Prerequisite: CSD 423 or equivalent.

CSD 428 Fundamentals of Vestibular Science Introduction to theoretical foundations of vestibular science, function testing and management. Topics include the structure and function of the vestibular system, other sensory and motor systems necessary for balance, vestibular pathology, and nonvestibular sources of dizziness and tinnitus.

CSD 429 Evaluation and Treatment of Balance Disorders Evaluation and treatment of individuals with balance disorders, including electrophysiologic evaluation of the vestibular system. Prerequisites: CSD 425-0 and CSD 428-0, or consent of instructor.
CSD 432 Neuromotor Speech Disorders in Infants and Children Classifications, symptomatologies, and etiologies of the cerebral palsies, dystrophies, and other upper- and lower-motor neuron diseases of congenital or early onset. Consideration of associated cognitive, perceptual, sensory, and convulsive disorders. Emphasis on evaluation and management of communicative deficits.

CSD 433 Craniofacial Anomalies and Syndromes Comprehensive study of the interdisciplinary team approach to the identification, evaluation, and treatment of cleft lip and palate and other craniofacial malformations.

CSD 434 Neuropsychology and Learning Disabilities The neural basis of developmental learning and cognitive disorders, with an emphasis on neuroimaging approaches in the areas of attention, language, and reading.

CSD 436 Working with Individuals with Cerebral Palsy (.5) An overview of cerebral palsy, including such topics as causes and types, symptomatology, typical and atypical motor development, associated disorders, speech and language and feeding characteristics of individuals with various types of cerebral palsy, and assessment and treatment.


CSD 439 The Management of Feeding Disorders in Infants and Toddlers Developmental sequence of feeding skills in infants/toddlers; anatomy and physiology of swallowing, respiratory and gastrointestinal systems; psychological impact of feeding disorders; comparison of atypical oral sensory motor patterns, and feeding and swallowing behaviors across various pediatric disorders; treatment.

CSD 441 Infant and Toddler Assessment Principles involved in the process of assessment; issues that impact diagnosis; standardized assessment instruments; and informal assessment techniques. All domains of development are included -cognition, speech and language, motor skills, and affective development.

CSD 444 Development and Disorders of Mathematics Theories and research on mathematical development and disorders. Identification, assessment, and remediation of disorders of mathematics and related areas.

CSD 445 Supervision in Speech-Language Pathology The supervisor as agent for development of clinicians and as administrator and organizer of clinical programs. Direct supervision of working clinicians.

CSD 448 Clinical Writing for CSD (.5) Written documentation in professional practice. Knowledge of strategies for improving the quality of treatment reports and diagnostic
evaluations. Strategies will focus on selection and prioritization of content, organization, clarity and editing. Prerequisite: graduate standing.

**CSD 453 Overview of Language Disorders** This course will introduce students to a full range of disorders of or involving language. Information regarding etiology, strengths and weaknesses in language and cognition, variability in presentation/sub-types, differential diagnosis (vs. depression, attention or behavioral disorder, etc.), theoretical positions regarding underlying mechanisms, and relevant empirical evidence will be provided. A developmental perspective will be adopted throughout.

**CSD 454 Language Disorders** (1.5) This course will discuss the disruption, diagnosis, and treatment of sensori-motor, perceptual-motor, cognitive, and language specific systems across the lifespan. In addition, system deficits will be discussed as they relate to specific language disorders and syndromes.

**CSD 455 Clinical Speech Anatomy, Physiology, and Motor Control** Exploration of the structural and functional intricacies of the upper aerodigestive tract and concepts of motor control and learning as they pertain to speech and swallowing. Anatomical structures and physiology of the speech mechanism, including oral, pharyngeal, and laryngeal structures and the respiratory system are reviewed and theories of motor control and learning are introduced. Clinical scenarios and populations provide the context for concept exploration.

**CSD 456 Clinical Neuroanatomy and Physiology** Exploration of the structures and circuits in the human nervous system mediating motor, sensory, perceptual, linguistic, and cognitive functions. Introduction to physiologic and behavioral deficits associated with neurological pathologies.

**CSD 457 Language Science** Introduction to theories and supporting experimental evidence regarding human recognition and understanding of written and spoken language. Discussion regarding psycholinguistic, neurolinguistic, and cognitive neuropsychological research focused on understanding the neurocognitive mechanisms supporting lexical-semantic and syntactic processes. Emphasis on relevance of lexical-semantic and syntactic theories, models and data to understanding both developmental and acquired language disorders.

**CSD 458-0.6 Scientific Clinical Decision Making** Exploration of current best evidence in making decisions about the assessment and treatment of individuals with communication disorders. Overview of different research methodologies as well as tools to evaluate the quality of different types of research studies. Emphasis on the integration of research evidence and critical thinking into practice.

**CSD 460 Counseling and Effective Communication** Exploration of the concepts of counseling as applied to therapeutic relationships in SLP, with a focus on the SLP’s role in supporting the client’s acceptance, growth, autonomy, and decision making. Emphasis
on clinician self-awareness as a requisite component for effective counseling. Opportunity for practice of skills during structured exercises.

**CSD 461 Augmentative and Alternative Communication across the Lifespan**
Overview of the use augmentative and alternative communication (AAC) across the lifespan. Emphasis on assessment of personal skills and abilities for use of AAC, identification of barriers to communication and participation, and intervention strategies. Exploration of issues of funding and advocacy.

**CSD 462 Professional Issues in Speech Language Pathology**
Analysis of a wide variety of issues pertinent to the professional life of the SLP including scope of service, regulatory agencies, workplace skills, employment settings, infection control, and ethics. Exploration of team membership and conflict resolution as well as concepts of cultural awareness and sensitivity, advocacy, and leadership.

**CSD 463 The Field of Special Education**
Exploration of educational approaches to working with exceptional students, including those with disabilities, in regular and special education classrooms. Review of legal mandates for school with students with disabilities. Discussion of the effect of children with disabilities on the family constellation. Content covered as required by IL standards.

**CSD 464 Linguistic and Cultural Diversity in Communication Sciences and Disorders**
Study of culture and communication in linguistically diverse populations across the lifespan. Exploration of bilingual speech and language acquisition in typically and atypically developing children. Discussion regarding the potential for cross-cultural, cross-linguistic, and bilingual issues during assessment and treatment and methods for minimizing bias. Introduction to acquired speech and language disorders in bilingual adults.

**CSD 466 Nature and Measurement of Intelligence**
Problems, procedures, and clinical implications of measuring human intelligence; Binet and Wechsler tests.

**CSD 468 Clinical Management of Hearing Impairment and Rehabilitation**
Clinical practice in management of impaired hearing.

**CSD 469 Topics in Communication Sciences and Disorders**
Current scientific and professional issues in communication sciences and disorders. Topics vary by offering.

**CSD 470 Diagnostic Studies of Speech, Language, and Learning Disabilities**
Clinical study of children and adults with combined speech-language and learning disabilities; participation on a multidisciplinary team involved in differential diagnosis.

**CSD 471 Theory and Practice in Speech, Language, and Learning Disabilities**
Supervised remediation of children with speech and language impairments and learning disabilities.

**CSD 472 Introduction to Clinical Methods**
Exploration of the fundamentals of clinical methods, including the concepts of behavior change, session design, and functional,
client-focused treatment. Discussion of data collection and documentation methods.
Introduction to the assessment process.

CSD 473 Clinical Methods: Pediatric Populations (0) Clinical experience in the
evaluation and treatment of pediatric clients. Registration includes assignment to clinical
teams, clinical team meetings, and didactic coursework addressing clinical methods with
pediatric clients. Students assessed by clinical performance, team contribution, and
didactic performance.

CSD 474 Clinical Methods: Adult Populations (0) Clinical experience in the evaluation
and treatment of adult clients. Registration includes assignment to clinical teams, clinical
team meetings, and didactic coursework addressing clinical methods with adult clients.
Students assessed by clinical performance, team contribution, and didactic performance.

CSD 475 Advanced Clinical Methods 1 Clinical experience in the evaluation and
treatment of a variety of clients. Registration includes assignment to clinical teams and
clinical team meetings. Students assessed by clinical performance and team contribution.

CSD 477 Advanced Clinical Methods 2 (1 or 2) Clinical experience in the evaluation
and treatment of a variety of clients. Registration includes assignment to clinical teams and
clinical team meetings. Students assessed by clinical performance and team contribution.

CSD 478 Externship: Public School Practicum (2 or 3) Full time supervised practicum
in a public school setting. Students assessed by clinical performance and setting
appropriate professional behaviors and skills.

CSD 479 Externship: Clinical Practicum (2 or 3) Full time supervised practicum in a
health-based or other clinical setting, including hospitals, rehabilitation centers, skilled
nursing facilities, outpatient facilities, early intervention, private practices, or private
schools. Students assessed by clinical performance and setting appropriate professional
behaviors and skills.

CSD 481-1,2,3 Theory and Practice in Learning Disabilities and Related Disorders
(.5,1,1) Supervised practica and seminars in the Learning Clinic at Northwestern
University. Design and implement remedial programs. Collaboration with parents and
schools.

CSD 482-1,2 Clinical Study and Research in Differential Diagnosis The differential
diagnosis process, including interviewing, test administration, scoring, and interpretation;
assessment of behavior; and oral and written dissemination of results.

CSD 483-1,2 Student Teaching Practicum in Learning Disabilities and Related
Disorders Supervised teaching of exceptional children. Observation and participation in
classes of normal-learning children as well as children with learning problems and related
disorders.
CSD 484-1,2 Student Teaching Seminar in Learning Disabilities and Related Disorders Discussion of supervised teaching of normal-learning children as well as children with learning problems and related disorders.

CSD 486 Language Disorders in Children with Learning Disabilities and Related Problems Theories and research regarding oral language problems of individuals with learning disabilities and other disorders. Assessment and intervention for form, content, and usage is emphasized.

CSD 487 Advanced Issues in Literacy Disorders This course will provide theoretical perspectives on typical and atypical development of literacy skills. Current and historical models of reading and written language and their implications for instruction will be presented. Efficacy-based interventions and the use of technology will be addressed.


CSD 490 Adult Neuromotor Speech Disorders Examination of the potential etiologies and characteristics of motor speech disorders in adults, including acoustic, perceptual, physiologic, and neurologic correlates. Focus on assessment, diagnosis, and effective treatment. Emphasis on the integration of normative data, scientific knowledge, and clinical practice.

CSD 491-0 Pediatric Speech Sound Disorders Overview of potential etiologies and characteristics of speech sound disorders in children. Focus on assessment, diagnosis, and effective treatment of articulation and phonological disorders as well as childhood apraxia of speech. Emphasis on the integration of normative data, scientific knowledge, and clinical practice.

CSD 491-2 Advanced Articulation and Phonological Disorders in Children (.5) Advanced study of research in the evaluation and treatment of articulation and phonological disorders in children. Application in the design of treatment protocols.

CSD 492 Pediatric Language Disorders Overview of potential etiologies and characteristics of language disorders in children from infancy through adolescence. Focus on assessment, diagnosis, and effective treatment of children with specific language impairments, autism spectrum disorders, and cognitively based language impairments as well as the interplay between language, learning, and literacy. Emphasis on the integration of normative data, scientific knowledge, and clinical practice.

CSD 493-0 Vocal Physiology and Pathology Overview of the anatomy and physiology of voice production. Exploration of diagnosis and management of congenital, acquired,
and non-organic disorders of phonation. Emphasis on the integration of normative data, scientific knowledge, and clinical practice.

CSD 493-2 Advanced Studies in Voice Problems (.5) Review of research with application to treatments of voice disorders in special populations. Emphasis on techniques for clinical decision making, case management, and laboratory measurement.

CSD 494-0 Fluency, and Fluency Disorders Overview of potential etiologies and characteristics of fluency disorders in children and adults. Focus on assessment, diagnosis, and effective treatment of stuttering across the lifespan. Consideration of the experience of stuttering from the point of view of the person who stutters. Emphasis on the integration of normative data, scientific knowledge, and clinical practice.


CSD 495-0 Acquired Neurolinguistic and Neurocognitive Disorders Examination of the neural bases and characteristics of acquired linguistic and cognitive disorders, including aphasia, dementia, and right hemisphere syndrome. Exploration of how normal language and cognitive systems are fractionated by brain damage. Focus on assessment, diagnosis, prognosis, treatment and recovery processes associated with these disorders. Emphasis on the integration of normative data, scientific knowledge, and clinical practice.

CSD 495-2 Approaches to Aphasia Treatment (.5) Study of linguistic, cognitive, neuropsychological, functional, and other treatment approaches in aphasia. Critical evaluation of the strength of evidence of each approach.

CSD 496 Approaches to Cognitive Treatment An overview of acquired disorders of cognition and approaches to their clinical management.

CSD 497 Swallow Physiology and Pathology Exploration of the anatomy and physiology of normal swallowing and the anatomic and physiologic disturbances affecting deglutition. Focus on recognizing clinical and radiographic signs and symptoms of dysphagia and selection and implementation of treatment and management. Discussion of ethical considerations. Emphasis on the integration of normative data, scientific knowledge, and clinical practice.

CSD 499 Independent Study (0.5, 1, 2, or 3) May be repeated for credit. Consent of instructor and department required.

500-Level Courses
CSD 507 Neural Mechanisms of Language Processing  Topics in brain-behavior relationships, emphasizing normal and abnormal speech and language.

CSD 508 Research Methods  Seminar in contemporary research practices and procedures in clinical audiology.

CSD 511 Translational Research in Communication Sciences and Disorders  Seminar on how all aspects of communication—sensory processing, cognitive/language factors, and motor processes—interact in normal and disordered functioning, and how research can address treatment outcomes.


CSD 514 Seminar: Topics in Peripheral Auditory Neuroscience  Problems in the biophysics and physiology of hearing.

CSD 516 Seminar: Experimental and Theoretical Aspects of Audiology  Open to graduate students pursuing the PhD degree.

CSD 519-0 Pediatric Amplification  A seminar devoted to amplification for infants and children. Current knowledge relevant to hearing aid selection, fitting, validation, and verification in infants and children. The course also covers issues relevant to classroom acoustics, classroom amplification and device use, and the role of the educational audiologist.

CSD 521-0 Cognition and Aging  A seminar devoted to issues related to older adults, including changes in health and cognition with age. Current knowledge relevant to older adults, and discussion of scientific literature relevant to aging and cognition. Emphasis on using current information to guide clinical decisions.

CSD 522-0 Hearing Loss Prevention and Conservation  The impact of environmental noise on people and the hearing mechanism, current practices in hearing conservation and prevention, and laws, regulations, and policies related to noise and hearing. Experience in measurement of noise sources.

CSD 523-0 Assessment and Management of Tinnitus and Sound Tolerance Issues  A seminar devoted to management of tinnitus and of sound tolerance problems, including hyperacusis. Management of hearing impairment in older adults and discussion of scientific literature relevant to professional practice. Emphasis on the evaluation of new information, and the use of that information to make patient decisions.

CSD 525 Seminar: Topics in Central Auditory Neuroscience  Neurobiology underlying perception and learning of complex sounds such as speech and music. Prerequisite: CSD 302-0.
CSD 530 Professional Issues in Speech and Language Pathology (0) Meetings and updates on professional issues in speech and language pathology.

CSD 532-1,2,3 Treatment: Clinical Procedures in Speech and Language Pathology (.5) Therapeutic management of individuals with problems of speech-sound learning, fluency, voice, language, swallowing, or multiple disorders. Prerequisite: 531.

CSD 533-1,2 Advanced Treatment: Clinical Procedures in Speech and Language Pathology Therapeutic management of individuals with problems of speech-sound learning, fluency, voice, language, swallowing, or multiple disorders. Prerequisite: 532-1,2,3.

CSD 534-1,2 Diagnostics: Clinical Procedures in Speech and Language Pathology Diagnostic evaluation of preschool, school-age, and adult individuals with speech and language impairment/differences. Taken simultaneously with CSD 533-1 or CSD 533-2.

CSD 537-1,2,3 Advanced School Practicum in Speech and Language Pathology Advanced supervised clinical teaching in speech and language pathology in a specialized school setting.

CSD 538 Advanced Practicum in Health-Based Facilities: Clinical Procedures in Speech and Language Pathology (2 or 3) Advanced clinical practicum in a specialized hospital or rehabilitation-center setting.

CSD 539 Early Intervention: Clinical Procedures in Speech and Language Pathology (2 or 3) Theory and practice of assessment and intervention in the birth-to-three population. Emphasis on working with families and professional teams in various practicum settings.

CSD 544 Responsible Conduct of Research in Communication Sciences and Disorders Overview of the Responsible Conduct of Research, with topics including the responsible conduct of CSD research in key areas identified by the National Institutes of Health; expectations about conduct within the research enterprise; research misconduct; and the role of the CSD scientist beyond the lab, including the global implications of research.

CSD 545 Survey of Research in Communication Studies and Disorders Professional issues in the field of communication sciences and disorders. Topics include ethics, grants and funding, peer reviews and publishing, postdoctoral experiences, interviewing, and tenure.

CSD 546-0 Directed Teaching in Communication Sciences and Disorders Guided teaching experience. Preparation and delivery of class lectures, as well as observation of teaching methods, preparation of the course outline, selection of readings, and writing of exam questions.
CSD 550-1 Research Foundations in Communication Sciences and Disorders (Scientific Thinking) An introduction to scientific thinking as applied to Communication Sciences and Disorders. Topics to be covered include the scientific method, hypotheses versus predictions, the purpose of data collection, previous evidence, and scientific argumentation.

CSD 550-2 Research Foundations in Communication Sciences and Disorders (Experimental Design) Essential concepts in designing and interpreting experiments in communication sciences and disorders. The range of methods commonly used in sub-disciplines of CSD (i.e., biology, psychology and clinical studies), with an eye to the strengths and weaknesses of each. Selection of papers of interest on a given topic, and critique of the research design.

CSD 550-3 Research Foundations in Communication Sciences and Disorders (Scientific Communication) Focus on how to convey scientific ideas and findings, building on scientific thinking and experimental design covered in previous courses. Emphasis is placed on how to communicate effectively across spoken, written, and visual formats, and to a variety of audiences. Iterative assignments on different types of communication (e.g., elevator speech, short research talk, abstract) throughout the quarter.

CSD 551 Topics in Communication Sciences and Disorders Reading, reviewing, and critiquing published research in a specific topic area in communication sciences and disorders. Topics to be announced.

CSD 552-1,2,3 Laboratory Experiences in Communication Sciences and Disorders Experience in laboratory research in communication sciences and disorders. Prerequisite: faculty permission.

CSD 553 Computational Modeling in Communication Sciences and Disorders Introduction to the use of computer programming and computational modeling to address problems in communication sciences and disorders.

CSD 560-6 Organizational Behavior for the Speech-Language Pathologist Analysis of the complex organizations in which speech-language pathologists work, including healthcare organizations, school systems, multidisciplinary clinics, private practices, early intervention settings, and research labs. Exploration of human behavior and motivation within the context of an organization. Emphasis on methods and strategies to motivate and incentivize team members and develop collaborative teams.

CSD 561-6 Business Principles for Speech-Language Pathologists Exploration of the requisite factors for building a sustainable business in the field of speech-language pathology (SLP). Introduction to essential concepts in accounting, marketing, market analysis and finance. Focus on designing a strategic plan for a new or expanding business venture in SLP.
CSD 562-6 Operations and Process Improvement for Speech-Language Pathologists  
Exploration of service operations as they apply to the complex organizations in which speech-language pathologists work, including healthcare organizations, school systems, multidisciplinary clinics, private practices, early intervention settings, and research labs. Overview of process improvement methodologies. Focus on building efficient operations that deliver exceptional speech-language pathology services while effectively managing resources.

CSD 563-6 Leadership for Speech-Language Pathologists  
Exploration of the essential concepts and principles of leadership as they apply to speech-language pathologists (SLP). Exploration of the role of the SLP as a leader and innovator at the micro and macro levels. Emphasis on self-assessment of leadership skills and development of a personal growth plan.

CSD 564-6 Education and Supervision in Speech-Language Pathology  
Overview of the various roles of the speech-language pathologist as educator and supervisor. Exploration of the scholarship of teaching and learning as it applies to both didactic and clinical instruction and development. Emphasis on integration and application of best practices in education and supervision within the student’s setting of choice.

CSD 565-6 Policy in Health and Education  
Introduction to educational and health policies as they apply to provision of speech-language pathology and related services. Exploration of the major issues and challenges facing U.S. policymakers as well as a comparison of U.S. and international approaches. Focus on the speech-language pathologist’s role within current and future frameworks.

CSD 566-6 Digital Literacies for the Speech Language Pathologist  
Overview of personal knowledge management and the digital literacies requisite for professional practice. Exploration of utility and creation of digital tools and applications incorporated into therapy. Emphasis on developing and maintaining flexible personal digital systems that facilitate collaboration, connectivity, information access, and productivity.

CSD 570-1,2,3 Seminar: Capstone Project  

CSD 571-6 Dissemination and Implementation in Communication Sciences and Disorders  
Dissemination and implementation of best evidence in clinical policy and practice. Overview of dissemination and implementation research methods, analytic tools and data collection. Emphasis on the outcomes that matter to stakeholders and policy makers.

CSD 572-6 Single Subject Experimental Designs  
Exploration of the various types of single subject experimental designs. Focus on designing methods specific to clinical
research questions. Emphasis on integration of research methods into everyday clinical practice.

**CSD 573-6 Clinical Specialization** Development of specialized clinical skills in the student’s area of clinical focus via accumulation of a minimum of 35 clock hours in clinical skill development. Approval of the clinical specialization plan by the SLP-D committee is required.

**CSD 575 Advanced Seminar: Current Topics in Learning Disabilities** Review of areas of current research. May be repeated for credit with change of topic.

**CSD 580-1,2,3,4 Clinical Externship** Supervised clinical experience in off-campus setting(s) and special topics lectures.

**CSD 581-6 Culminating Project** Completion of an in-depth project spanning the duration of the SLP-D experience. Exploration of specialty area via one of the following project types: business proposal, process improvement plan, clinical investigation, or scholarship of teaching and learning investigation. Plans for completion of the culminating project are submitted to and approved by the SLP-D committee, and the project is completed under the supervision of at least one mentor.

**CSD 582-6 Culminating Project** Completion of an in-depth project spanning the duration of the SLP-D experience. Exploration of specialty area via one of the following project types: business proposal, process improvement plan, clinical investigation, or scholarship of teaching and learning investigation. Plans for completion of the culminating project are submitted to and approved by the SLP-D committee, and the project is completed under the supervision of at least one mentor.

**CSD 589 Advanced Study and Research in Differential Diagnosis of Learning Disabilities** Individual research in differential diagnosis of language and learning disabilities in adults.

**CSD 590 Research** (1, 2, or 3) Independent investigation of selected problems pertaining to thesis or dissertation. May be repeated for credit.