

CSD Course Descriptions

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

100- and 200-Level Courses

GEN CMN 108 Communication Disorders Basic facts and principles of human communication and its disorders. Laboratory experience provides an introduction to research in human communication science.

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

CSD 201 Phonetics Training in transcription of English speech sounds. Introduction to phonological analysis, dynamics of articulation, and dialect variations.

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, 202, 307, or permission 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.

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

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 307 Acoustic Phonetics Acoustic theory of speech production and perception. Emphasis on acoustic cues underlying speech sound identification and their physiologic correlates. Laboratory and lecture.

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. Prerequisite: junior standing or permission of instructor.

CSD 314 Topics in Cognitive Neuroscience Introduction to the study of cognitive neuroscience, with emphasis on cross-disciplinary approaches to understanding the mechanisms of the mind.

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. Lecture/laboratory.

CSD 334 Delivery Systems in Speech and Language Pathology Organization and administration of speech-language pathology services in schools, health care agencies, and private practice. Prerequisites: 397 and senior standing.

CSD 336 the Field of Special Education Criteria for in-school evaluation, eligibility, and intervention for students with disabilities. Legal basis of policies and regulations.

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 Typical and Atypical Development in Infants and Toddlers Description and theory relevant to the physical, motor, cognitive, linguistic, and social development of both typical and atypical children during the first three years of life.

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 permission of instructor.

CSD 350 Cognitive Development in Atypical Learners Normal cognitive development in perception, attention, memory, language, conceptualization, and problem solving with application to atypical children with genetic and brain abnormalities.

CSD 351 Development and Disorders of Memory Scientific models and evidence for memory development. Memory disorders in relation to developmental and life-span issues.

CSD 369 Special Topics in Speech and Language Pathology Current scientific and professional problems in speech and language pathology. Topics vary by quarter.

CSD 370 Special Topics in Learning Disabilities Current scientific and professional problems in learning disabilities.

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

CSD 374 Behavior Assessment and Management in Children Theories and application of behavior analysis and management principles. Emphasis on assessment techniques, classroom management approaches, and strategies for the facilitation of learning.

CSD 375 Diagnostic Procedures for Exceptional Children Introduces students to differential diagnostic procedures used in special education. Examination of cognitive and emotional disorders, sensory impairment, physical handicaps, and legal aspects of diagnosis.

CSD 376 Remedial Education for Children with Learning Disabilities Theories and intervention principles for disorders of oral language, reading, written language, mathematics, and nonverbal learning.

CSD 377 Learning Disabilities in Early Childhood Theoretical issues, assessment, and educational principles for young children with learning disabilities. Emphasis on problems of language, cognition, and pre-academic learning. Instruction and home management.

CSD 378-1,2 Student Teaching 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 379-1,2 Student Teaching in Learning Disabilities and Related Disorders
Continuation of 378.

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. Prerequisites: 375 and 376.

CSD 381 Social Development in Normal and Learning-Disabled Children Current theories of and empirical research on social-emotional development from infancy through adolescence; identification and treatment of social deficits in learning-disabled children.

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 Diagnostic Procedures in Speech and Language Pathology Evaluation of speech and language disorders. Interviewing, report writing; use of standardized tests; examination of speech sensory and motor functions. Prerequisite: senior standing or above, 392, or permission of instructor.

CSD 397 Introduction to Clinical Procedures in Speech and Language Pathology Beginning practicum experience in a clinical setting. Emphasis on planning and executing a remedial program for individuals with problems of speech sound production and language usage. Prerequisite: 392, 491-1, or permission of instructor.

CSD 399 Independent study Prerequisite: permission 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. Prerequisites: CSD 307, LING 350.

CSD 404-1,2 Experimental Design and Statistics in Communication Sciences and Disorders First Quarter: Experimental design. Higher-order experimental methods; research designs. Applications. Analysis of variance procedures, linear correlation and

regression, and problems in design and interpretation of research. Second Quarter: Advanced statistics. Covariance, factor, and nonparametric analysis. Multivariate procedures and test statistics; research applications.

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 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 306, CSD 302, and CSD 405-1 or equivalents.

CSD 406 Functional Neuroanatomy Structures and circuits in the human nervous system mediating motor, sensory, perceptual, linguistic, and cognitive functions. Introduction to behavioral deficits associated with neurological pathologies.

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

CSD 408 Business Practices in Audiology Business and management issues in audiology, including managing clinical operations, writing business plans, establishing financial systems and using medical codes.

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. Prerequisite: CSD 423 or permission 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 Characteristics and design of amplification options; electroacoustic measurements; fitting and verification techniques.

CSD 415-1,2,3,4,5,6 Clinical Study and Practicum in Audiology Lectures, discussions, practicum in University and off-campus hearing clinics. (1): Fundamentals of Clinical Practice; (2): Adult Aural Rehabilitation; (3): Ethics; (4): Pediatric Rehabilitation; (5): Clinical Supervision; (6): Manual Communication.

CSD 417 Noise and Its Effect on People Measurement and control of environmental noise; acoustic trauma; industrial audiometry; conservation of hearing; medicolegal criteria of hearing loss.

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. Prerequisite: CSD 423 or permission of instructor.

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

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 Evaluation and treatment of central auditory system disorders. Prerequisite: CSD 423 or equivalent.

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 or equivalent.

CSD 426 Evaluation and Treatment of Balance Disorders Evaluation and treatment of individuals with balance disorders, including electrophysiologic evaluation of the vestibular system. Prerequisite: CSD 425 or permission of instructor.

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

CSD 432 Neuromotor Speech Disorders in Infants and Children Classifications, symptomatology, 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. Prerequisite: CSD 302.

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 435 Neuromotor Speech Disorders in Adults Neuropathologic factors affecting motor speech control: acoustic, perceptual, physiologic, and neurologic correlates. Differential diagnosis and management of dysarthric, apractic, and abulic speech syndromes.

CSD 438-1 Dysphagia: Diagnosis and Treatment of Swallowing Disorders The anatomy and physiology of normal swallowing and the anatomic and physiologic disturbances affecting deglutition, emphasizing radiographic and bedside diagnostic and treatment procedures. Laboratory experience in analysis of videofluoroscopic studies of deglutition.

CSD 438-2 Problem Solving in Management of Dysphagia Principles of problem solving in dysphagia. Application of principles, including scientific rationale. Prerequisite:CSD 438-1.

CSD 440 Alternative and Augmentative Communication Theories and practices in clinical management of severely impaired or nonspeaking persons. Application of graphics, signs, and gestural means of communication; use of aids and devices; developing interactive communication behaviors; developing and using computer-assisted communication strategies. Lectures, laboratory, and independent study/project.

CSD 441 Infant and Toddler Assessment Principles involved in the process of assessment; issues that impact on 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 449 Counseling in Communication Sciences and Disorders (.5) Theories of counseling applied to speech, hearing, language, and learning-handicapped persons and their families.

CSD 465 Hearing Impairment Principles and practices in rehabilitation of children and adults, including use of sensory aids, counseling, and communication remediation, emphasizing speech reading, and auditory training techniques.

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

CSD 467 Seminar: Advanced Topics in Management of Hearing Impairment Critical review of applied research and professional issues in management of impaired hearing.

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

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 476 Writing and Disorders of Written Language The nature of writing and the development and disorders of written language, including both theoretical and clinical issues. Measures of eliciting and analyzing written texts; implications for assessment and remediation.

CSD 478-1,2,3 Theory and Practice in Learning Disabilities and Related Disorders Supervised practica and seminars in the Learning Clinic at Northwestern University. Design and implement remedial programs. Collaboration with parents and schools. Third Quarter: Diagnostic teaching.

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 Development and Disorders of Reading Covers theories of reading acquisition, reading comprehension, developmental dyslexia and other reading disorders across the lifespan. Includes the study of methods of assessment and research based interventions for struggling readers.

CSD 488 Psychoeducational Assessment and Testing Principles Procedures for assessing processes underlying learning, academic achievement, and psychosocial behavior. Administration, scoring, and interpretation of standardized tests and assessment tools. Curriculum-based and portfolio assessment.

CSD 489-1,2 Clinical Study and Research in Differential Diagnosis The differential diagnosis process, including interviewing, test administration, scoring, and interpretation; assessment of behavior; oral and written dissemination of results; and counseling parents.

CSD 491-1 Articulation and Phonological Disorders in Children Analysis of research-based approaches to the evaluation and treatment of disorders of articulation and phonology in children.

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. Prerequisite: CSD 491-1.

CSD 492 Language Disorders in Preschool Children In-depth study of research on specific language impairments and pervasive developmental disorders in preschoolers. Language intervention is a focus. Prerequisite: CSD 392.

CSD 493-1 Vocal Physiology and Pathology Normal vocal physiology and vocal pathologies. Evaluation and treatment of voice disorders. Pertinent research findings are included. Prerequisites: CSD 301 and CSD 307 or permission of instructor.

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. Prerequisite: CSD 493-1.

CSD 494-1 Fluency, Disfluency, and Stuttering Normal development of fluency and disrupting factors. Study of the nature and etiologies of disfluent speech patterns. Approaches for diagnosis, counseling, and treatment of stuttering.

CSD 494-2 Advanced Studies in Disorders of Fluency (.5) Analysis of approaches for treating stuttering and related disorders in relation to current theory and research. Pediatric and adult populations. Prerequisite: CSD 494-1.

CSD 495-1 Aphasia: Disorders of Language Representation and Processing Disorders of language resulting from acquired brain damage. Neurological correlates; neuropsychological and neurolinguistic theories of normal language representation and processing and disordered language. Introduction to diagnostic methods, treatment procedures, and recovery patterns.

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. Prerequisite: CSD 495-1 or permission of instructor.

CSD 496 Communication Problems in Dementia (.5) Dementia types, etiologies, and characteristics. Communication correlates of dementia as distinct from normal aging and other progressive neurological impairments. Assessment and intervention approaches.

CSD 499 Independent Study (1, 2, or 3) May be repeated for credit. Permission 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 in Clinical Audiology Seminar in contemporary research practices and procedures in clinical audiology.

CSD 513 Seminar: Problems in Speech Science Issues in speech science. Open to doctoral students.

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 525 Seminar: Topics in Central Auditory Neuroscience Neurobiology underlying perception and learning of complex sounds such as speech and music. Prerequisite: CSD 302.

CSD 530 Professional Issues in Speech and Language Pathology (0) Meetings and updates on professional issues in speech and language pathology.

CSD 531 Introduction to Clinical Procedures in Speech and Language Pathology Beginning practicum experience in a clinical setting. Emphasis on planning and executing a remedial program for individuals with problems of speech sound production and language usage. Prerequisite: permission of instructor.

CSD 532-1,2 Treatment: Clinical Procedures in Speech and Language Pathology Therapeutic management of individuals with problems of speech-sound learning, fluency, voice, language, or multiple disorders. Prerequisite: CSD 397 or 531. May be repeated for credit.

CSD 533-1,2 Advanced Treatment: Clinical Procedures in Speech and Language Pathology Treatment of preschool, school-age, and adult individuals with speech and language impairment. May be repeated.

CSD 534-1,2 Diagnostics: Clinical Procedures in Speech and Language Pathology Taken simultaneously with 533-1, 2; complementary course on diagnostic evaluation.

CSD 535-1,2,3 School Practicum in Speech and Language Pathology Supervised practicum of speech-language pathology services in schools. Participation in parent-teacher conferences and on IEP teams. Prerequisites: CSD 334 and CSD 397.

CSD 536 Practicum in Health-Based Facilities: Clinical Procedures in Speech and Language Pathology (2 or 3) Clinical practicum in hospital or rehabilitation-center settings; participation in interdisciplinary conferences. See department for registration details.

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

CSD 539 Early Intervention: Clinical Procedures in Speech and Language Pathology 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 545 Survey of Research in Communication Studies and Disorders Seminar designed to present an introduction to research in the field of communication sciences and disorders by providing a brief introduction to ethics in clinical research and providing information about the research labs in the department. Prerequisite: faculty permission. Recommended enrollment in first quarter of doctoral study.

CSD 550-1,2 Research Procedures in Communication Sciences and Disorders
Development of research projects in communication sciences and disorders including critical review.

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 570-1,2,3 Seminar: Capstone Project Development and execution of project relevant to clinical audiology. First Quarter: critical review of clinical research. Second Quarter: research methods for audiology. Third Quarter: professional writing and communication.

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 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.