

# SPEECH, LANGUAGE AND HEARING SCIENCES

The undergraduate program in speech, language and hearing sciences (SLHS) introduces concepts basic to human communication and provides opportunities for students to acquire an understanding of normal and disordered speech, language and hearing processes. The curriculum for the undergraduate degree in SLHS provides a strong academic foundation for students interested in a wide variety of careers related to the fields of disabilities, healthcare and education. Additionally, it provides the appropriate undergraduate background for students interested in continuing onto graduate school in speech pathology, audiology and/or special education.

The undergraduate degree in speech, language and hearing sciences emphasizes knowledge of:

- The anatomy of the speech and hearing mechanisms, as well as the processes of speech production, transmission and reception.
- The development of language.
- Scientific methods used in investigating speech/language/learning and hearing processes.
- The etiologies, characteristics and treatments of speech, language, learning and hearing disorders.
- The role of the professional speech-language pathologist and audiologist, including the scientific traditions of the discipline and the ethical issues in providing service to individuals with communication disorders.

In addition, students completing the degree in speech, language and hearing sciences are expected to acquire the ability and skills to:

- Express themselves effectively both orally and in written scientific and clinical discipline-specific reports.
- Critically evaluate literature in the discipline.
- Analyze the acoustic output of the speech production process auditorily and/or instrumentally.

Course code for this program is SLHS.

## Bachelor's Degree

- Speech, Language and Hearing Sciences - Bachelor of Arts (BA) (<https://catalog.colorado.edu/undergraduate/colleges-schools/arts-sciences/programs-study/speech-language-hearing-sciences/speech-language-hearing-sciences-bachelor-arts-ba/>)
- Speech, Language and Hearing Sciences - Minor (<https://catalog.colorado.edu/undergraduate/colleges-schools/arts-sciences/programs-study/speech-language-hearing-sciences/speech-language-hearing-sciences-minor/>)

## Faculty

While many faculty teach both undergraduate and graduate students, some instruct students at the undergraduate level only. For more information, contact the faculty member's home department.

Arehart, Kathryn H. ([https://experts.colorado.edu/display/fisid\\_105561/](https://experts.colorado.edu/display/fisid_105561/))  
Professor; PhD, University of Washington

Baiduc, Rachael ([https://experts.colorado.edu/display/fisid\\_157676/](https://experts.colorado.edu/display/fisid_157676/))  
Assistant Professor; PhD, University of Washington

Brennan, Christine ([https://experts.colorado.edu/display/fisid\\_155861/](https://experts.colorado.edu/display/fisid_155861/))  
Assistant Professor; PhD, Northwestern University

Fredrickson, Tammy L. ([https://experts.colorado.edu/display/fisid\\_148888/](https://experts.colorado.edu/display/fisid_148888/))  
Clinical Associate Professor; PhD, University of Colorado Boulder

Hilger, Alexandra ([https://experts.colorado.edu/individual/fisid\\_167224/](https://experts.colorado.edu/individual/fisid_167224/))  
Assistant Professor; PhD, Northwestern University

Kan, Pui Fong ([https://experts.colorado.edu/display/fisid\\_145806/](https://experts.colorado.edu/display/fisid_145806/))  
Associate Professor; PhD, University of Minnesota Twin Cities

Kates, James  
Scholar in Residence; MS, Massachusetts Institute of Technology

Lemke, Alison ([https://experts.colorado.edu/display/fisid\\_164203/](https://experts.colorado.edu/display/fisid_164203/))  
Clinical Associate Professor; MA, University of Iowa

Lewon, Jennifer ([https://experts.colorado.edu/display/fisid\\_147362/](https://experts.colorado.edu/display/fisid_147362/))  
Clinical Assistant Professor; MA, Northern Arizona University

Meyers-Denman, Christina Nicole ([https://experts.colorado.edu/display/fisid\\_155857/](https://experts.colorado.edu/display/fisid_155857/))  
Assistant Professor; PhD, University of Arizona

Pollard, Ryan D. ([https://experts.colorado.edu/display/fisid\\_153106/](https://experts.colorado.edu/display/fisid_153106/))  
Clinical Assistant Professor, Lecturer; PhD, University of Colorado Boulder

Ramig, Peter R.  
Professor Emeritus

Ramsberger, Gail ([https://experts.colorado.edu/display/fisid\\_100943/](https://experts.colorado.edu/display/fisid_100943/))  
Associate Professor; ScD, Boston University

Schick, Brenda ([https://experts.colorado.edu/display/fisid\\_110058/](https://experts.colorado.edu/display/fisid_110058/))  
Professor Emeritus; PhD, Purdue University

Sharma, Anu ([https://experts.colorado.edu/display/fisid\\_143814/](https://experts.colorado.edu/display/fisid_143814/))  
Professor, Associate Chair; PhD, Northwestern University

Sommerfeldt, Kristin  
Clinical Assistant Professor; AuD, University of Florida

Sweetman, Richard H.  
Professor Emeritus

Tennant, Sherri  
Instructor; MS, University of Wisconsin Madison

Tucker, Kathryn  
Instructor; MA, University of Colorado Boulder

Werner, LJ ([https://experts.colorado.edu/display/fisid\\_154952/](https://experts.colorado.edu/display/fisid_154952/))  
Scholar in Residence; MA, University of Colorado Denver

## Courses

### SLHS 1010 (3) Disabilities in Contemporary American Society

Addresses the issue that 50 percent of all individuals experience disability in their lifetime. Introduces students to the social, cultural, psychological, economic, political, legal, and health-care issues related to society and individuals with disabilities.

**Additional Information:** Arts Sci Core Curr: Contemporary Societies  
Arts Sci Gen Ed: Distribution-Social Sciences  
Arts Sci Gen Ed: Diversity-U.S. Perspective  
Departmental Category: Didactic: All-Department

### SLHS 2000 (3) Introduction to Communication Disorders

Surveys communication disorders, including hearing impairments, learning disabilities, and speech-language disorders, as well as an introduction to basic speech and hearing science.

**Additional Information:** Arts Sci Gen Ed: Distribution-Social Sciences  
Departmental Category: Didactic: All-Department

### SLHS 2010 (3) Science of Human Communication

Discusses how human communication (the process by which a thought is transmitted from the brain of a speaker to the brain of a listener) involves a complex interaction of acoustics, anatomy, physiology, neurobiology, and psychology.

**Additional Information:** Arts Sci Core Curr: Natural Science Non-Sequence  
Arts Sci Gen Ed: Distribution-Natural Sciences  
Departmental Category: Didactic: All-Department

### SLHS 2305 (4) American Sign Language 1

Introduces basic sign vocabulary, grammatical structures of ASL, and the culture of deaf people. Classes are taught using ASL without the use of spoken English.

**Additional Information:** Arts Sci Gen Ed: Distribution-Arts Humanities  
Departmental Category: American Sign Language

### SLHS 2315 (4) American Sign Language 2

Develops more complex vocabulary and grammatical structures, and an understanding of deaf culture. Classes are taught using ASL without the use of spoken English.

**Requisites:** Requires a prerequisite course of SLHS 2305 (minimum grade C-).

**Additional Information:** Arts Sci Gen Ed: Distribution-Arts Humanities  
Departmental Category: American Sign Language

### SLHS 2325 (4) American Sign Language 3

Continuation of SLHS 2315. Covers ASL literature, advanced grammatical structures, idiomatic expressions, and deaf culture.

**Requisites:** Requires a prerequisite course of SLHS 2315 (minimum grade C-).

**Additional Information:** Arts Sci Core Curr: Foreign Language  
Arts Sci Gen Ed: Distribution-Arts Humanities  
Arts Sci Gen Ed: Foreign Language  
Departmental Category: American Sign Language

### SLHS 3003 (3) Cognitive Science

Introduces cognitive science, drawing from psychology, philosophy, artificial intelligence, neuroscience, and linguistics. Studies the linguistic relativity hypothesis, consciousness, categorization, linguistic rules, the mind-body problem, nature versus nurture, conceptual structure and metaphor, logic/problem solving and judgment. Emphasizes the nature, implications and limitations of the computational model of mind.

**Equivalent - Duplicate Degree Credit Not Granted:** LING 3005 and PHIL 3310 and PSYC 3005 and CSCI 3702 and CSPB 3702

**Recommended:** Prerequisites two of the following CSCI 1300 or LING 2000 or PHIL 2440 or PSYC 2145.

**Additional Information:** Arts Sci Gen Ed: Distribution-Arts Humanities  
Arts Sci Gen Ed: Distribution-Natural Sciences  
Arts Sci Gen Ed: Distribution-Social Sciences

### SLHS 3006 (3) Phonetics

Focuses on production of speech sounds, transcribing speech using the International Phonetic Alphabet, analyzing the acoustic properties of speech sounds, understanding how speech sounds vary depending on the context. Provides a foundation for understanding normal and atypical speech development, atypical speech problems and patterns, regional and foreign accents, and speech recognition by computers.

**Requisites:** Requires a prerequisite course of LING 2000 (minimum grade C-).

**Additional Information:** Arts Sci Gen Ed: Distribution-Social Sciences  
Departmental Category: Didactic: Speech-Hearing Science

### SLHS 3014 (3) Hearing Loss Epidemiology

Introduces students to basic epidemiological concepts related to hearing loss. Provides an overview of the hearing mechanism, assessment and identification of hearing loss, prevalence of hearing disorders, treatment and intervention. Noise pollution, aging and toxic agents are discussed. Focuses on risk factors for hearing impairment and comorbidities.

**Requisites:** Restricted to students with 27-180 credits (Sophomores, Juniors or Seniors) only.

**Additional Information:** Arts Sci Gen Ed: Distribution-Social Sciences  
Departmental Category: Didactic: Audiology

### SLHS 3106 (3) Hearing Science

Focuses on the three main aspects of the hearing process: sounds in the environment (physical acoustics), sounds encoded within the auditory system (physiological acoustics) and perception of sound (psychological acoustics).

**Requisites:** Requires a prerequisite course of SLHS 2010 (minimum grade C-). Restricted to Speech, Language and Hearing Sciences (SLHS) undergraduate majors minors with a minimum of 27 credits (Sophomore), or SLHS master's students, or Audiology (AUDD) majors only

**Additional Information:** Arts Sci Gen Ed: Distribution-Natural Sciences  
Departmental Category: Didactic: Speech-Hearing Science

### SLHS 3116 (3) Anatomy, Physiology, and Science of Speech

Provides a basic understanding of the structural organization (anatomy), function (physiology), and neural controls of the structures used to produce speech, swallowing, respiration, and related behaviors in humans.

**Requisites:** Requires a prerequisite course of SLHS 2010 (minimum grade C-).

**Recommended:** Prerequisite SLHS 3106.

**Additional Information:** Arts Sci Gen Ed: Distribution-Natural Sciences  
Departmental Category: Didactic: Speech-Hearing Science

**SLHS 4000 (3) Multicultural Aspects of Communication Differences and Disorders**

Examines perceptions and attitudes regarding differences in communication as a function of cultural-linguistic diversity. Discusses implications of differing verbal and nonverbal communication styles of various cultural groups in terms of professional responsibilities.

**Requisites:** Restricted to students with 57-180 credits (Juniors or Seniors).

**Additional Information:** Departmental Category: Didactic: All-Department

**SLHS 4100 (1-3) Special Topics in Speech, Language, and Hearing Sciences**

Studies selected topics in speech, language, hearing sciences, communication disorders, and other professional issues.

**Additional Information:** Departmental Category: Didactic: All-Department

**SLHS 4502 (3) Language Disorders Across the Lifespan**

Provides students with an introductory understanding of the causes, characteristics, assessment and treatment of developmental and acquired language disorders in children and adults. Examines a variety of disorders including specific language impairment, learning disabilities, and language and cognitive disorders due to brain damage. Considers the challenge of identifying language disorders in children and adults from culturally and linguistically diverse backgrounds.

**Requisites:** Requires a prerequisite or corequisite course of SLHS 4560 (minimum grade C-).

**Additional Information:** Arts Sci Gen Ed: Distribution-Social Sciences  
Departmental Category: Didactic: Speech-Language Pathology

**SLHS 4512 (3) Speech Disorders Across the Lifespan**

Provides students with an introductory understanding of the causes, characteristics, assessment and treatment of speech disorders including those involving articulation, voice, resonance, and fluency. Examines a variety of disorders including stuttering, speech sound disorders, cleft lip and palate, vocal pathology, as well as dysarthria and apraxia due to stroke, trauma, and progressive neurological diseases.

**Requisites:** Requires a prerequisite course of SLHS 2010 (minimum grade C-).

**Additional Information:** Arts Sci Gen Ed: Distribution-Social Sciences  
Departmental Category: Didactic: Speech-Language Pathology

**SLHS 4560 (3) Language Development**

Covers the development of language in childhood and into adult life, emphasizing the role of environment and biological endowment in learning to communicate with words, sentences, and narratives.

**Equivalent - Duplicate Degree Credit Not Granted:** LING 4560 and PSYC 4560

**Requisites:** Restricted to Speech, Language and Hearing Sciences (SLHS) undergraduate majors and minors, or SLHS master's students, or Audiology (AUDD) majors only.

**Additional Information:** Arts Sci Gen Ed: Distribution-Social Sciences  
Departmental Category: Didactic: All-Department

**SLHS 4576 (3) Communication Neuroscience**

Provides an introduction to neuroscience with an emphasis on the systems that support human communication including speech perception and production, language, memory and cognition. Topic areas will include auditory processing, language, memory and motor systems. Development of brain systems and structures will be explored, as well as neurologically based disorders. Neuroscientific methods surveyed will include MRI, fMRI, EEG, MEG, NIRS, lesion studies and electrophysiology.

**Requisites:** Requires a prerequisite course of SLHS 2010 or NRSC 2100 (both minimum grade C-). Restricted to students with 27-180 credits (Sophomores, Juniors or Seniors).

**Additional Information:** Arts Sci Gen Ed: Distribution-Natural Sciences

**SLHS 4704 (3) Audiological Evaluation**

Studies basic principles and techniques of hearing evaluation, including pure-tone, speech, immittance, and advanced audiometry; hearing conservation in hospital, school, and industrial settings; and identification and evaluation of auditory pathologies. Required projects in screening and pure-tone audiometry.

**Requisites:** Requires a prerequisite course of SLHS 3106 (minimum grade C-).

**Additional Information:** Arts Sci Gen Ed: Distribution-Natural Sciences  
Departmental Category: Didactic: Audiology

**SLHS 4714 (3) Audiological Rehabilitation**

Covers basic principles and techniques related to the habilitation and rehabilitation of individuals who are deaf or hard of hearing: amplification, speech, language, auditory, speech reading, and educational issues.

**Requisites:** Requires prerequisite courses of LING 3100 or SLHS 3006. Requires a prerequisite or corequisite course of SLHS 4704 (all minimum grade C-).

**Additional Information:** Arts Sci Gen Ed: Distribution-Social Sciences  
Departmental Category: Didactic: Audiology

**SLHS 4849 (1-6) Independent Study for Undergraduates**

Instructor consent required.

**Repeatable:** Repeatable for up to 8.00 total credit hours. Allows multiple enrollment in term.

**Additional Information:** Departmental Category: Independent Study

**SLHS 4918 (2) Introduction to Clinical Practice**

Introduces students to the clinical processes and key components of assessment and interventions. Explores the applications of theoretical and scientific information to clinical settings. Students complete supervised observation of assessment and intervention with individuals with communication challenges.

**Requisites:** Requires a prerequisite course of SLHS 2000 (minimum grade C-). Restricted to students with 57-180 credits (Junior or Senior) Speech, Language and Hearing Sciences (SLHS) majors only.

**Additional Information:** Arts Sci Gen Ed: Distribution-Social Sciences  
Departmental Category: Practica

**SLHS 4938 (1-6) Internship: Speech-Language Intervention**

Provides a supervised clinical experience with children or adults who have communication challenges. Instructor consent required.

**Repeatable:** Repeatable for up to 6.00 total credit hours. Allows multiple enrollment in term.

**Additional Information:** Departmental Category: Practica