
250. Independent Study Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Approval of department. Special projects in an Asian Languages arranged by an individual student and a faculty member in areas supplementing regular course offerings.

252. Master's Thesis Research-Plan A Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 15 credits in all enrollments for this course. R: Approval of department. Directed research leading to a master's thesis, used in partial fulfillment of plan A master's degree requirements.

254. Doctoral Dissertation Research Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 50 credits in all enrollments for this course. R: Approval of college.

Astronomy and Astrophysics - Descriptions of Courses

401. East Asian Cultures Fall. Spring, 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. P: IAH 211B or approval of department. Selected topics in the history and culture of China, Japan, and Korea. Topics vary.

404. Studies in the Literature of Asia and the Asian Diaspora Spring, 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. Interdepartmental with English, Romance Languages, and Linguistics and Languages. R: Not open to freshmen. Selected topics in an Asian Language arranged by an individual student and a faculty member in areas supplementing regular course offerings.

409. Independent Study Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to juniors and seniors. Approval of department. Special topics supplementing regular course offerings proposed by faculty on a group study basis.

Astronomy and Astrophysics

Department of Physics and Astronomy College of Natural Science

201. Astrophysics and Astronomy I Fall, 3(3-0) P: PHY 183 or PHY 183B or PHY 193H; MTH 132 or MTH 152H. Overview of the universe: the celestial sphere, orbits, spectra, the solar system, stars, and stellar evolution.

202. Astrophysics and Astronomy II Spring, 3(3-0) P: AST 201; PHY 184 or PHY 184B or PHY 284H; MTH 234 or MTH 254H, or concurrently. Interstellar medium, the Milky Way, galaxies, and star formation. Coordinate systems, instruments, and data analysis.

301. Junior Research Seminar Spring. 1-10 A student may earn a maximum of 4 credits in all enrollments for this course. R: AST 202. R: Completion of Tier I writing requirement. Preparation and presentation of a research paper on a current topic in astronomy or astrophysics.

310. Directed Studies Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. Individual study or project in astronomy or astrophysics under the direction of a faculty member.

301. Stars Fall, 3(3-0) P: AST 202, PHY 331 or concurrently. Physical processes that determine the structure and evolution of stars. Results of stellar evolution theory. Stellar atmospheres. Observations of stars.
Astronomical Instrumentation and Data Analysis
Fall of odd-numbered years. 3(3-0)
P: ASC 201. Theory and techniques of astronomical data acquisition and analysis.

AUDIOLoGY AND SPEECH SCIEnCES ASC

Department of Audiology and Speech Sciences
College of Communication Arts and Sciences

012A. Development and Improvement of Oral Communication Skills
Fall, Spring, Summer. 0 credit. 2 credits. See page A-2, item 3.1 R: Approval of department.
Oral communication skills emphasizing articulation, voice, and fluency.

012B. Development and Improvement of Oral Communication Skills
Fall, Spring, Summer. 0 credit. 2 credits. See page A-2, item 3.1 R: Approval of department.
Oral communication skills emphasizing articulation, voice, and fluency.

012C. Development and Improvement of Oral Communication Skills
Fall, Spring, Summer. 0 credit. 2 credits. See page A-2, item 3.1 R: Approval of department.
Oral communication skills emphasizing articulation, voice, and fluency.

119. Oral Communication Principles and Skills
Fall, Spring, Summer. 3(3-2) Study, development and enhancement of oral communication skills including speech, voice, language and listening.

209. Introduction to Communication Sciences and Disorders
Fall, Spring. 3(3-0) R: Not open to students with credit in ASC 403.
Survey of research and practice regarding speech, hearing and language disorders in children and adults.

214. Anatomy and Physiology of the Speech and Hearing Mechanism
Fall. 4(3-3) P: ASC 203 or concurrently.
Structural and functional analyses of the central and peripheral auditory mechanisms, and of the respiratory, phonatory, and articulatory mechanisms for speech.

232. Descriptive Phonetics
Fall. 2(2-2)
Principles of speech production. Transcription of speech using the International Phonetic Alphabet.

255. Speech and Hearing Sciences
Spring. 5(4-9)
P: ASC 214, ASC 233 or concurrently, MTH 110 or MTH 116, one ISP course. R: Not open to freshmen.
Application of the scientific method to the studies of audition, speech perception and speech production.

333. Oral Language Development
Fall, Spring, Summer. 3(3-0) P: PSY 161; LIN 200 or LIN 401 or ENG 302. R: Not open to freshmen.
Development of receptive and expressive aspects of child language.

344. Evaluation Procedures in Audiology
Fall. 4(3-3) P: ASC 215. R: Approval of department.
Classification of hearing disorders. Behavioral and electrodiagnostic measurement of hearing, including subjective and objective testing procedures.

364. Evaluation Procedures in Speech-Language Pathology
Fall. 4(3-2) P: ASC 203. R: Open only to Audiology and Speech Sciences majors.
Evaluation procedures in speech-language pathology, test procedures, evaluation of results, and report writing.

394. Guidelines for Clinical Practice
Fall, Spring, Summer. 2(2-0) P: ASC 344, ASC 364. R: Approval of department.
Principles and practices operative in speech and hearing clinics. Interviewing techniques, Behavioral observation and data collection, behavioral management, Counseling, Session plan and report writing.

403. Communication Sciences and Disorders
Fall. 3(3-0) R: Not open to freshmen.
Research and practice regarding communication disorders and the professions of speech-language pathology and audiology.

433. Language Dialect Differences in Applied Contexts
Spring. 3(3-0) R: Not open to freshmen.
Regional, ethnic, and cultural characteristics of American English. Comparison of speech-language differences and disorders.

445. Aural Rehabilitation
Spring. 3(3-0) P: ASC 244.
Fundamental aspects of auditory rehabilitation, including individual and group amplification systems, auditory training, speechreading, and counseling with children and adults.

463. Intervention Procedures in Speech-Language Pathology
Spring. 3(3-0) P: ASC 364. R: Open only to Audiology and Speech Sciences majors.
Intervention procedures for individuals with developmental and acquired communication disorders.

483. School-Based Communication Disorders Programs
Spring. 3(3-0) P: ASC 463, ASC 454 or concurrently. R: Open only to Audiology and Speech Sciences majors.
Administrative and regulatory aspects of school-based programs for persons with communication disorders.

490. Independent Study
Fall, Spring, Summer. 1 to 4 credits. R: Approval of department.
Individualized student activities in human communication sciences and disorders.

494. Clinical Practicum in Communication Disorders
Fall, Spring, Summer. 2 credits. R: Open only to students with credit in all enrollments for this course.
P: ASC 394. A minimum of 25 hours of approved clinical observation. R: Open only to Audiology and Speech Sciences majors.
Supervised clinical experiences, working with individuals who have speech, language and/or hearing disorders.

803. Research Methods in Communication Sciences and Disorders
Fall. 3(3-0) R: Open only to graduate students in Audiology and Speech Sciences.
Hypothesis generation, experimental design, data collection, data analysis and presentation.

813. Neuroanatomy and Neurophysiology of Speech, Language, and Hearing
Fall. 3(3-0) R: Open only to graduate students in Audiology and Speech Sciences.
Structural and functional descriptions of the nervous system as it relates to communication sciences and disorders.

823A. Acquired Language Disorders
Spring. 3(3-0) P: ASC 310 or concurrently. R: Open only to graduate students in Audiology and Speech Sciences.
Neuropsychology, psycholinguistics, and speech-language rehabilitation of individuals with aphasia and related disorders.

823B. Motor Speech Disorders
Fall. 3(3-0) P: ASC 310 or concurrently. R: Open only to graduate students in Audiology and Speech Sciences.
Neuropsychology, psycholinguistics, and speech-language habilitation and rehabilitation of individuals with motor speech disorders.

823C. Voice Disorders
Summer. 3(3-0) R: Open only to graduate students in Audiology and Speech Sciences.
Etiology, symptomatology, diagnosis, and treatment of voice disorders in children and adults.

823D. Fluency Disorders
Fall. 3(3-0) R: Open only to graduate students in Audiology and Speech Sciences.
Etiology, symptomatology, diagnosis, and treatment of fluency disorders in children and adults.

823E. Assessment of Childhood Language Disorders
Fall. 3(4-0) R: Open only to graduate students in Audiology and Speech Sciences.
Etiology, diagnosis, and treatment of language disorders for preschool, school-aged, and adolescent populations.

823F. Language Intervention: Early Stages
Spring. 3(3-0) P: ASC 394 or approval of department. R: Open only to graduate students in Audiology and Speech Sciences.
Principles of intervention in language disorders for children functioning at or below preschool levels, regardless of chronological age.

823G. Language Intervention: Later Stages
Summer. 3(3-0) P: ASC 394 or approval of department. R: Open only to graduate students in Audiology and Speech Sciences.
Principles of intervention in language disorders for school-age children and adolescents functioning above preschool levels.