Audiology and Speech Sciences - Descriptions of Courses

801. Seminar
Winter, Fall, Spring, 3(1-0) May reenroll for a maximum of 2 credits. Graduate students or approval of department.
Seminars to be presented by both faculty and students to review papers in the current astronomical research literature.

819. Stellar Structure
Spring of even-numbered years, 3(3-0)
AST 458 or PHY 485 or approval of department.

826. Galactic Structure
Winter of even-numbered years, 3(3-0)
PHY 427 or approval of department.
Distribution and dynamics of stars and interstellar material in our galaxy. Spiral structure. Galactic evolution.

550. Ionized Gases
Fall, Spring, 3(3-0) E E 535 or PHY 448; E E 874.
Interdepartmental with Electrical Engineering and the Department of Physics administered by Electrical Engineering.
Elastic collision processes; Boltzmann equation; moment equations; motion of a charged particle in electromagnetic and magnetic field; individual and collective charged particle behavior; macroscopic properties of plasmas, waves in the fluid plasma; transport phenomena in plasma.

559. Stellar Atmospheres
Spring of odd-numbered years, 3(3-0)
AST 458 or PHY 485 or approval of department.
The physics of radiation and the equation of transfer. Theory of absorption coefficient and line absorption profile. The grey atmosphere and calculation of model atmospheres.

960. General Relativity and Cosmology I
Fall of even-numbered years, 3(3-0)
PHY 585 or approval of department. Interdepartmental with and administered by the Department of Physics.
Conceptual foundations of general relativity theory; elements of tensor calculus; Riemann-Cartesian curvature tensor; the field equations; experimental tests; special solutions; the extension to cosmology.

861. General Relativity and Cosmology II
Winter of odd-numbered years, 3(3-0)
PHY 860. Interdepartmental with and administered by the Department of Physics.
Relativistic cosmology: the model universe; stead-state theory; observational evidence and possibilities for decision among models; current problems.

894. Advanced Readings in Physics or Astronomy
Fall, Winter, Spring, Summer. Variable credit. Interdepartmental with and administered by the Department of Physics.

984. Waves and Radiations in Plasmas
Winter of odd-numbered years, 3(3-0)
E E 850. Interdepartmental with the Department of Physics and Electrical Engineering and administered by Electrical Engineering.
Plasma oscillation: interaction, electromagnetic fields with plasmas, wave propagation in magnetohydrodynamic plasmas; radiation of electromagnetic source in incompressive and compressive plasmas; electroacoustic waves; magnetohydrodynamics; research topics in plasmas.

AUDIOLoGY AND SPEECH SCIENCES

College of Communication Arts and Sciences

108. Voice and Articulation
Fall, Winter, Spring, Summer, 3(4-0)
The study and development of the skills of voice and articulation.

222. Oral Language Development
Winter, Summer, 3(2-0)
Emergence and development of receptive and expressive aspects of oral language of the child.

274. Speech, Hearing, and Communication Disorders
Fall, Winter, Summer, 3(3-0)
Scientific bases of voice communication with special reference to the acoustic aspect of production.

372. Speech Pathology I
Fall, Winter, 3(3-0) ASC 274 or approval of department.
General principles of speech disorders.

374. Clinical Procedures in Speech Pathology and Audiology
Fall, Winter, Spring, 4(4-0) 2.00 grade-point average in ASC 274 and ASC 273 or approval of department.
Principles underlying the clinical interview and client relationships essential to diagnosis and therapy. Procedures in obtaining, recording, and evaluating test results and therapeutic methods.

441. Oral Language of Urban Areas
Winter, Summer, 3(3-0)
Focus on the characteristics of language and human communication as these relate to studies and practices of those involved in urban affairs.

454. Introduction to Audiology
Fall, Spring, 3(4-1) ASC 275, ASC 277.
Fundamental aspects of normal hearing, hearing disorders, hearing tests.

460. Aural Rehabilitation
Winter, Summer, 3(4-1) ASC 454 or approval of instructor.
Fundamental aspects of hearing aids; auditory training; speechreading for the hearing-impaired person.

470. Communication Disorders
Spring, Summer, 3(3-0) Not open to Audiology and Speech Sciences majors.
An overview of communication disorders; the professions of speech and language pathology and audiology and their relationships to allied professions.

474. Clinical Practicum in Speech and Language Pathology
Fall, Winter, Spring, Summer. 1 credit.
May reenroll for a maximum of 2 credits. Grade of 2.0 or better in both 372 and 373. Therapeutic experience in speech and language pathology.

476. Speech Pathology II: Therapeutic Experience
Fall, Winter, Spring, Summer, 3(3-2)
474 or approval of department.
Test procedures and analysis; supervised clinical experience in language and speech evaluations and report writing.

490. Research Design in Audiology and Speech Sciences
Fall, Spring, 4(4-0) Self-paced. Senior majors or approval of department.
Sampling, measurement, experimental design, data collection, and problem formulation as applied to audiology and speech sciences. Approved through Summer 1980.

499. Independent Study
Fall, Winter, Spring, Summer. 1 to 5 credits. May reenroll for a maximum of 12 credits. Approval of department.

801. Advanced Study of Articulatory Behavior
Fall, Spring, 4(3-1) Approval of department.
Theoretical and pragmatic implications of the interrelationships of articulatory behavior and language production, especially as related to investigations and procedures.

810. Audiology Calibration Standards
Summer, Spring, 3(2) ASC 854 or ASC 833A and ASC 833B; ASC 900A, approval of department.
Contemporary electro-acoustic and other measurement standards for audiometers, sound level meters, earphones, hearing aids, and related devices; current issues in standards development; laboratory in applied measurement.

831. Speech and Hearing Problems of Adults
A. Neuropathologies of Speech
Winter, 3(3-0)
Neuropathology, symptomatology, and speech and language rehabilitation of adults.

B. Voice Disorders
Spring, 4(3-0)
Symptomatology, and therapeutic procedures for disorders of voice. Voice pathologist and audiologist in relation to other disciplines in the rehabilitation of adults with voice disorders.
832. Speech and Hearing Evaluation and Therapy
A. Hearing Handicap
   Summer. 4(2-2)
   A theoretical approach to the study of the aural rehabilitative process.
B. Cerebral Palsy
   Spring. 4(3-0)
   Etiology, symptomatology, structural and functional consideration of cerebral palsy. Therapeutic procedures for the speech of the cerebral palsied.
C. Delayed Language Development
   Winter. 4(3-0)
   Evaluative techniques including audiometry, psychometry, and case history as aids to the differential evaluation of delayed language development.
D. Mental Retardation
   Summer. 4(3-0)
   Language behavior and speech development of the mentally retarded as related to all facets of personal-social development and adjustment.
E. Stuttering
   Fall. 4(3-0)
   Longitudinal studies of stuttering theories and the therapies accompanying them.
F. Cleft Palate
   Summer. 4(3-1)
   Etiology, symptomatology, structural and functional consideration of cleft palate. Therapeutic procedures for the speech habilitation of cleft palate individuals.

833. Specialized Clinical Audiology
A. Differential Audiometry
   Fall. 4(3-0)
   Pure tone audiometric tests as an aid to the otologist in evaluating the pathology of hearing loss; including the development of norms. Consideration of nonorganic loss.
B. Speech Audiology and Evaluation of Hearing Aids
   Fall. 4(4-0)
   Speech audiometry; principles and methods in the selection of hearing aids; physical characteristics of hearing aids.
C. Industrial Audiology
   Spring. 4(2-2)
   Evaluation of the role of the audiologist in industry emphasizing identification procedures, damage-risk criteria, measurement and control of noise, conservation procedures, and medico-legal problems.
D. Advanced Audiological Evaluation
   Winter. 4(3-1)
   Theory, administration and evaluation of selected tests including Bekesy, EDR, EEC, and advanced speech-audiometric tests.
E. Pediatric Audiology
   Winter. 4(2-2)
   Evaluative procedures including play audiometry, language assessment, and case studies as aids to the differential diagnosis of auditory disorders in children; habilitative procedures for the acoustically handicapped child.

834. Speech and Hearing Problems in Public Schools
   Summer. 4(3-0) May reenroll for a maximum of 16 credits.
   Graduate seminar in speech and hearing involving problems that arise in relation to speech and hearing therapy in the public schools.

874. Speech and Hearing Problems in Public Schools
   Summer. 4(3-0) May reenroll for a maximum of 16 credits.
   Graduate seminar in speech and hearing involving problems that arise in relation to speech and hearing therapy in the public schools.

875A. Clinical Practicum in Speech and Language Pathology
   Fall, Winter, Spring, Summer. 1 credit.
   ASC 474. May reenroll for a maximum of 8 credits.
   Directed diagnostic, therapeutic, and prognostic experience in speech and language pathology.

875B. Clinical Practicum in Audiology
   Fall, Winter, Spring, Summer. 1 credit.
   ASC 454. May reenroll for a maximum of 8 credits.
   Directed diagnostic, therapeutic, and prognostic experience in audiology in various clinical settings.

876. Communication Disorders: Neuroanatomy-Neurophysiology
   Fall. 4(3-1) Approval of department.
   Neuroanatomical and neurophysiological correlates of speech, language, and hearing.

580A. Algorithms for Speech and Hearing Sciences
   Fall. 4(4-0)
   A discussion of useful algorithms applicable to quantification of phenomena related to audiology and speech sciences.

580B. Acoustic Phonetics
   Winter. 4(2-2) ASC 580A or approval of department.
   An analytic study of the acoustics of speech.

580C. Instruments and Electronics for Audiology and Speech Sciences
   Spring. 4(3-2) ASC 580B or approval of department.
   A discussion of the electronic principles and instruments necessary to measure parameters related to hearing and speech processes.

580D. Experimental Phonetics
   Summer. 4(4-0) ASC 580C or approval of department.
   Critical review of the literature in experimental phonetics. Selected papers on acoustic and physiological phonetics and related fields are presented in seminar fashion.

899. Research
   Fall, Winter, Spring, Summer. Variable credit. Approval of department.

940. Seminar in Audiology and Speech Sciences
   Spring. 4(3-0) May reenroll for a maximum of 16 credits.

990. Special Problems in Audiology and Speech Sciences
   Fall, Winter, Spring, Summer. 1 to 6 credits.
   Special projects in audiology and speech sciences.

999. Research
   Fall, Winter, Spring, Summer. Variable credit. Approval of department.

BIOCHEMISTRY
BCH

College of Agriculture and Natural Resources
College of Human Medicine
College of Natural Science
College of Osteopathic Medicine

200. Introduction to Biochemistry
   Winter, Summer. 3(5-0) Credit may not be earned in both BCH 200 and BCH 401. General chemistry, one term organic chemistry. Not acceptable for a B.S. degree in biochemistry. Survey of biochemistry emphasizing the major metabolic activities of living organisms.

400H. Honors Work
   Fall, Winter, Spring. Variable credit. Approval of department. Assigned reading and experimentation.

401. Basic Biochemistry
   Fall, Spring. 3(5-0) Credit may not be earned in both BCH 200 and BCH 401. One year organic chemistry or CEM 542; not open to biochemistry majors.
   A one-semester presentation of biochemistry emphasizing structure and function of major biomolecules, metabolism and regulation. Examples used for illustrative purposes will emphasize the mammalian organism.

404. General Biochemistry Laboratory
   Winter, Spring. 3(1-6) Analytical chemistry; BCH 401 or BCH 451. Experimental aspects of biochemistry.

412. Clinical Biochemistry
   (363.) Winter, Summer. 4(2-3) BCH 401; CEM 163; Medical Technology majors. Not acceptable for a B.S. degree in biochemistry. Others: approval of department. Quantitative clinical laboratory methods.

451. Biochemistry
   Winter. 4(2-2) BCH 401. A comprehensive presentation of biochemistry designed for undergraduate biochemistry majors, students of medicine, and other students desiring an intensive treatment of the subject.

452. Biochemistry
   Winter. 4(4-0) BCH 451. Continuation of BCH 451.

4DC. Biological Membranes
   For course description see Interdisciplinary Courses.

499. Research
   Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department. A course designed to give qualified undergraduate students an opportunity to gain experience in biochemical research.

501. Medical Biochemistry
   Winter, Summer. 3(3-0) or 5(5-0) May enroll for a maximum of 5 credits in BCH 501 and BCH 502 combined. Winter: College of Human Medicine students; Summer: College of Osteopathic Medicine students.
   Basic biochemical principles and terminology of importance in medical biology.