

822. Methods of Comparative Literature
Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with English, Romance Languages, and Linguistics and Languages.

P: AL 821 or approval of college. R: Open only to graduate students in College of Arts and Letters. Case studies in international literary tradition, reception, and transmission. Approaches to genre and period. History and aesthetics of reception.

823. Seminar in Comparative Literary Criticism

Fall. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with English, Romance Languages, and Linguistics and Languages.

P: AL 822. R: Approval of college.

Theory and practice of comparative literary criticism, with attention to the development of critical approaches and to current topics in the critical literature.

825. Comparative Critical Theory

Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with English, Romance Languages, and Linguistics and Languages.

P: AL 822 or approval of college. R: Open only to graduate students in College of Arts and Letters. Critical theory of comparative literature, including comparative studies in rhetorical theory and discourse analysis.

829. Capstone Seminar in Health and Humanities

Spring. 2(2-0)

R: Approval of college.

Peer review of master's theses completed or near completion. Recent works in interdisciplinary approaches to health and humanities.

899. 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 college.

Directed research leading to a master's thesis, used in partial fulfillment of plan A master's degree requirements.

999. 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.

ASIAN LANGUAGES

ASN

Department of Linguistics and Germanic, Slavic, Asian and African Languages
College of Arts and Letters

250. Hanzi Writing System and Calligraphy
Spring. 3(3-0)

P: CHS 101 or JPN 102 or approval of department.

Structure and history of Chinese characters. Calligraphy. Use of Chinese dictionary.

290. 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.

401. East Asian Cultures

Fall. 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.

464. 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.

R: Not open to freshmen.

Selected writers, genres, themes, or regions in Asian and Asian diasporic literature.

490. 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 projects in Asian Languages arranged by an individual student and a faculty member in areas supplementing regular course offerings.

491. Special Topics in Asian Languages

Fall, Spring. 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

AST

Department of Physics and Astronomy
College of Natural Science

201. Astrophysics and Astronomy I

Fall. 3(4-0)

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. 4(3-2)

P: AST 201; PHY 184 or PHY 184B or PHY 294H; MTH 234 or MTH 254H, or concurrently.

Interstellar medium, the milky way, galaxies, and the large-scale structure of the universe. Coordinate systems, instruments, and data analysis.

301. Junior Research Seminar

Spring. 1(1-0) A student may earn a maximum of 4 credits in all enrollments for this course.

P: AST 202. R: Completion of Tier I writing requirement.

Preparation and presentation of a review 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.

P: AST 202. R: Approval of department.

Individual study or project in astronomy or astrophysics under the direction of a faculty member.

401. Stars

Fall. 3(3-0)

P: AST 202, PHY 321 or concurrently.

Physical processes that determine the structure and evolution of stars. Results of stellar evolution theory. Stellar atmospheres. Observations of stars.

402. Galaxies

Spring. 3(3-0)

P: AST 401, PHY 481.

Contents and dynamics of the milky way. Mass and luminosity distributions of galaxies. Stellar populations. The interstellar medium. Evolution of galaxies. Active galactic nuclei.

410. Senior Thesis

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.

R: Open only to seniors in Astrophysics. Completion of Tier I writing requirement.

Design and execute an original experiment or computation. A written and oral report of the research is required.

800. Research Methods

Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course.

P: AST 801.

Apprenticeship in astrophysical research; student will work closely with individual faculty member learning research techniques.

801. Introduction to Astrophysics

Fall. 3(3-0)

Survey of contemporary astrophysics. Stellar evolution, the structure of the Milky Way, the properties of external galaxies, and cosmology.

810. Radiation Astrophysics

Spring of odd-numbered years. 3(3-0)

P: AST 801.

Transfer of radiation through plasmas and processes for emission and absorption of photons. Interpretation of the spectra of stars, interstellar medium, and galaxies.

820. Advanced Topics in Astrophysics (MTC)

Fall, Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.

P: AST 801.

Advanced work in a specialized astrophysical topic.

830. Galactic and Extragalactic Dynamics

Fall of even-numbered years. 3(3-0)

P: AST 801, PHY 820.

Implications of gravitational dynamics and stellar evolution on galactic and extragalactic systems.

840. Stellar Astrophysics

Spring of even-numbered years. 3(3-0)

P: AST 801.

Physics of stellar interiors. Methods for calculating stellar models. Principles of stellar evolution.

850. Electrodynamics of Plasmas

Spring of odd-numbered years. 3(3-0) Interdepartmental with Electrical Engineering and Physics. Administered by Electrical Engineering.

P: EE 835 or PHY 488.

Plasma kinetic and macroscopic plasma transport theory. Electromagnetic wave propagation and charged particle diffusion processes in plasma. Electromagnetic energy absorption via elastic and inelastic collisions. Dc, rf, and microwave discharges.

860. Gravitational Astrophysics and Cosmology (MTC)

Fall, Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Topics in general relativity, gravitational astrophysics, and cosmology.

**Descriptions — Astronomy and Astrophysics
of
Courses**

**870. Astronomical Instrumentation and
Data Analysis**

Fall of odd-numbered years. 3(3-0)

P: AST 801.

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.]

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.]

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.]

R: Approval of department.

Oral communication skills emphasizing articulation, voice, and fluency.

**113. Oral Communication Principles and
Skills**

Fall, Spring, Summer. 3(2-2)

Study, development and enhancement of oral communication skills including speech, voice, language and listening.

**203. 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(3-2)

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(1-2)

Principles of speech production. Transcription of speech using the International Phonetic Alphabet.

255. Speech and Hearing Sciences

Spring. 5(4-2)

P: ASC 214, ASC 232 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. 3(3-0)

P: PSY 101; 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(3-2)

P: ASC 255. R: Completion of Tier I writing requirement.

Classification of hearing disorders. Behavioral and electrophysiological measurement of hearing, including subjective and objective testing procedures.

**364. Evaluation Procedures in
Speech-Language Pathology**

Fall. 4(3-2)

P: ASC 333. R: Open only to Audiology and Speech Sciences majors. Completion of Tier I writing requirement.

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: open only to majors in Audiology and Speech Sciences

Policies and practices operative in speech and hearing clinics. Interviewing techniques. Behavioral observation and data collection. Behavior management. Counseling. Session plan and report writing.

403. Communication Sciences and Disorders

Fall. 3(3-0)

R: Not open to freshmen and sophomores. Not open to Audiology and Speech Sciences majors. Not open to students with credit in ASC 203.

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 and sophomores.

Regional, ethnic, and cultural characteristics of American English. Comparison of speech-language differences and disorders.

443. Aural Rehabilitation

Spring. 3(3-0)

P: ASC 344. 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 494 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. A student may earn a maximum of 8 credits in all enrollments for this course.

R: Approval of department, application required.

Individualized student activities in human communication sciences and disorders.

**494. Clinical Practicum in Communication
Disorders**

Fall, Spring, Summer. 2 credits. A student may earn a maximum of 4 credits 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. Approval of department.

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 813 or concurrently. R: Open only to graduate students in Audiology and Speech Sciences.

Neuropathology, symptomatology, and speech-language rehabilitation of individuals with aphasia and related disorders.

823B. Motor Speech Disorders

Fall. 3(3-0)

P: ASC 813 or concurrently. R: Open only to graduate students in Audiology and Speech Sciences.

Neuropathology, symptomatology, 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.

History, theories, symptomatology, diagnosis, and treatment of fluency disorders in children and adults.

**823E. Assessment of Childhood Language
Disorders**

Fall. 3(3-0)

R: Open only to graduate students in Audiology and Speech Sciences.

Evaluation of language disorders of preschool, school-aged, and adolescent populations.

823F. Language Intervention: Early Stages

Spring. 3(3-0)

P: ASC 823E 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 823E 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.