ASTRONOMY AND ASTRONOMY

Department of Physics and Astronomy
College of Natural Science

201. Astrophysics and Astronomy I
Fall. 3(0-0)
P: PHYS 183 or PHYS 183B or PHYS 193H; MTH 132 or MTH 152G.
Overview of the universe: the celestial sphere, orbits, spectra, the solar system, stars, and stellar evolution.
QA: PHYS 287, PHYS 291H, MTH 113 QA: ASTG 229, ASTG 217

202. Astrophysics and Astronomy II
Spring. 4(3-2)
P: ASTG 201, PHYS 184 or PHYS 184B or PHYS 294H; MTH 254 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.
QA: ASTG 229 QA: ASTG 230, ASTG 327

301. Junior Research Seminar
Spring. 1(1-0)
A student may earn a maximum of 4 credits in all enrollments for this course.
P: ASTG 202. Preparation and presentation of a research paper on a current topic in astronomy or astrophysics under the direction of a faculty member.
QA: ASTG 230 QA: ASTG 490

401. Stars
Fall. 3(3-0)
QA: ASTG 237, PHYS 396 QA: ASTG 442

402. Galaxies
Spring. 3(3-0)
QA: PHYS 427, PHYS 447 QA: ASTG 462, ASTG 463

410. Senior Thesis
Fall. Spring. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.
P: ASTG 202. Approval of department. Individual study or project in astronomy or astrophysics under the direction of a faculty member.
QA: ASTG 230 QA: ASTG 490

810. Radiation Astrophysics
Spring of even numbered years. 3(3-0)
P: ASTG 801.
Transfer of radiation through plasmas and processes for emission and absorption of photons. Interpretation of the spectra of stars, interstellar medium, and galaxies.
QA: ASTG 442

820. Advanced Topics in Astrophysics
Fall, Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
P: ASTG 801.
Advanced work in a specialized astrophysical topic.
QA: ASTG 829

830. Galactic and Extragalactic Dynamics
Fall of even numbered years. 3(3-0)
P: ASTG 801, PHYS 829.
Implications of gravitational dynamics and stellar evolution on galactic and extragalactic systems.

840. Stellar Astrophysics
Spring of odd numbered years. 3(3-0)
P: ASTG 801.
QA: ASTG 820

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.
QA: PHYS 869, PHYS 861

870. Astronomical Instrumentation and Data Analysis
Fall of odd numbered years. 3(3-0)
P: ASTG 801.
Theory and techniques of astronomical data acquisition and analysis.

AUDIOLGY AND SPEECH SCIENCES

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

113. Oral Communication Principles and Skills
Fall, Spring. 3(2-2)
Study, development and enhancement of oral communication skills including speech, voice, language, and listening.
QA: COMM 115 QA: ASC 108

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 hearing and language disorders in children and adults.
QA: ASC 201, ASC 470

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.
QA: ASC 108 QA: ASC 274

222. Descriptive Phonetics
Fall. 2(1-2)
Principles of speech production. Transcription of speech using the International Phonetic Alphabet.
QA: ASC 274 QA: ASC 276

315. Auditory Perceptual Processes
Fall. 3(2-2)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

327. Clinical Auditory Assessment
Fall. Spring. 4(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

330. Clinical Auditory Diagnosis
Fall. Spring. 3(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

337. Advanced Auditory Assessment
Fall. Spring. 3(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

340. Auditory Perception and Processing
Fall. Spring. 3(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

349. Clinical Auditory Rehabilitation
Fall. Spring. 3(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

350. Clinical Auditory Evaluation
Fall. Spring. 3(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

354. Clinical Auditory Rehabilitation
Fall. Spring. 3(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

360. Clinical Auditory Evaluation
Fall. Spring. 3(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

367. Clinical Auditory Evaluation
Fall. Spring. 3(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

370. Clinical Auditory Evaluation
Fall. Spring. 3(3-0)
P: ASC 203, ASC 204 or concurrently, PHYS 205 or PHYS 205B, PSY 116 or PSY 116B.
Clinical evaluation of auditory perceptual processes.

400. 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 for this course.
QA: ASC 470, ASC 480

433. Language Disorders
Fall. 3(3-0)
P: ASC 344, ASC 454, ASC 464, ASC 474, ASC 484, ASC 494, ASC 504, ASC 514.
Research and practice regarding communication disorders.

443. Auditory Diagnosis and Evaluation
Fall. 3(3-0)
P: ASC 344, ASC 454, ASC 464, ASC 474, ASC 484, ASC 494, ASC 504, ASC 514.
Research and practice regarding communication disorders.

460. Advanced Auditory Evaluation
Fall. Spring. 3(3-0)
P: ASC 344, ASC 454, ASC 464, ASC 474, ASC 484, ASC 494, ASC 504, ASC 514.
Research and practice regarding communication disorders.

475. Advanced Auditory Assessment
Fall. Spring. 3(3-0)
P: ASC 344, ASC 454, ASC 464, ASC 474, ASC 484, ASC 494, ASC 504, ASC 514.
Research and practice regarding communication disorders.

485. Advanced Auditory Evaluation
Fall. Spring. 3(3-0)
P: ASC 344, ASC 454, ASC 464, ASC 474, ASC 484, ASC 494, ASC 504, ASC 514.
Research and practice regarding communication disorders.

500. Independent Study
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
P: Approval of department, application required. Individualized student activities in human communication sciences and disorders.
QA: ASC 499