207 The Milky Way
Fall of odd years. 3(3-0) P:M: (PHY 183 or PHY 193H or PHY 183B) and (MTH 132 or MTH 152H or LBS 118) SA: AST 202

308 Galaxies and Cosmology
Spring of even years. 3(3-0) P:M: (AST 307) and (PHY 194 or PHY 184B or PHY 204H) and (MTH 234 or concurrently or MTH 254H or concurrently or LBS 220 or concurrently) SA: AST 402
Structure and content of galaxies beyond the Milky Way. Active galaxies and quasars. The expanding universe. Modern cosmological models.

310 Directed Studies
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 4 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.

312 Observational Astronomy
Spring. 1(0-2) P:M: (AST 303 or AST 307) Basic observational techniques in astronomy. Stellar photometry and spectroscopy.

410 Senior Thesis
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 5 credits in all enrollments for this course. P:M: (AST 301) and completion of Tier I writing requirement.
Design and execute an original experiment or computation. A written and oral report of the research is required.

AUDIOLOGY AND ASC SPEECH SCIENCES

301 The Celestial Clockworks
Spring. 1(1-0)
Relationship between ancient skylore and timekeeping. Establishment of a calendar and celestial navigation. Development of the Greek horoscope as a time recorder and coordinate system.

207 The Science of Astronomy
Fall. 3(3-0) P:M: (PHY 231 or concurrently or PHY 231B or concurrently or ISP 205 or concurrently or PHY 161B or concurrently or PHY 183 or concurrently or PHY 183B or concurrently or LBS 271 or concurrently or PHY 231C or concurrently) and (MTH 116 or concurrently or MTH 114 or concurrently or LBS 117 or concurrently) Not open to students with credit in AST 201.
In-depth study of one topic in astronomy with emphasis on key discoveries. Topics may be cosmology, the solar system, and the life of stars. Observing with portable telescopes.

301 Junior Research Seminar
Fall, Spring. 1(1-0) P:M: Completion of Tier I writing requirement.
Preparation and presentation of a review paper on a current topic in astronomy or astrophysics.

303 Planetary System Astronomy
Fall of even years. 3(3-0) P:M: (PHY 183 or PHY 193H or PHY 183B) and (MTH 132 or MTH 152H or LBS 118) SA: AST 201
Origin and nature of the solar system. Planets of the solar system and other star systems. Asteroids, meteorites, and comets. Determination of time and celestial coordinates.

304 Stars
Spring of odd years. 3(3-0) P:M: (PHY 184 or PHY 184B or PHY 294H) and (AST 303) and (MTH 234 or concurrently or MTH 254H or concurrently or LBS 220 or concurrently) SA: AST 401

307 The Milky Way
Fall of odd years. 3(3-0) P:M: (PHY 183 or PHY 193H or PHY 183B) and (MTH 132 or MTH 152H or LBS 118) SA: AST 202

308 Galaxies and Cosmology
Spring of even years. 3(3-0) P:M: (AST 307) and (PHY 194 or PHY 184B or PHY 204H) and (MTH 234 or concurrently or MTH 254H or concurrently or LBS 220 or concurrently) SA: AST 402
Structure and content of galaxies beyond the Milky Way. Active galaxies and quasars. The expanding universe. Modern cosmological models.

310 Directed Studies
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 4 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.

312 Observational Astronomy
Spring. 1(0-2) P:M: (AST 303 or AST 307) Basic observational techniques in astronomy. Stellar photometry and spectroscopy.

410 Senior Thesis
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 5 credits in all enrollments for this course. P:M: (AST 301) and completion of Tier I writing requirement.
Design and execute an original experiment or computation. A written and oral report of the research is required.