# Course Schedule - Fall 2004

## Astronomy

### 100 ***Perspectives in Astronomy*** Credit: 3 hours.

(ASTR 100) One-term introduction to astronomy. The nature of science; sun, planets, and moons; origin of the solar system; nature and evolution of stars; exploding stars; stellar remnants, including dwarfs, neutron stars, and black holes; molecules in space; galaxies and quasars; past and future of the universe; and life in the universe. Lectures and observation; a field trip to Parkland Staerkel Planetarium may be required, nominal charge. Credit is not given to students with credit in ASTR 121 or 122; not open to students with credit in PHYS 212, or equivalent. Students with credit in PHYS 211 are encouraged to take ASTR 210.

This course satisfies the General Education Criteria for a Physical Sciences course.

Students interested in ASTR 100 should also consider ASTR 121 or ASTR 122 which cover the same materials and topics but in two semesters instead of one. ASTR 121 and ASTR 122 include two lectures each week and one weekly small discussion meeting for more individual attention. ASTR 121 and ASTR 122 are independent offerings and can be taken in any order. While ASTR 100, ASTR 121 and ASTR 122 are for non-science majors, problem solving with basic algebra is required. Science and astronomy majors should take ASTR 210.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 31278 | lecture | 1 | 11:00 AM - 11:50 AM | MWF | room 100 Gregory Hall | Kaler, J |
| 31278: Physical Sciences course. | | | | | | |
| 31279 | lecture | 2 | 12:00 PM - 12:50 PM | MWF | room 100 Gregory Hall | Dunne, B |
| 31279: Physical Sciences course. | | | | | | |
| 41827 | lecture | 3 | 04:00 PM - 04:50 PM | MWF | room 100 Noyes Laboratory | Williams, R |
| 41827: Physical Sciences course. | | | | | | |

### 121 ***The Solar System*** Credit: 3 hours.

(ASTR 121) Introductory survey of the universe; structure and motions of the earth and moon; planetary motions; physical nature of the planets; comets and meteors; origin and evolution of the solar system. Emphasis will be placed on problem-solving and scientific methods. Two lectures and one discussion each week, and observing sessions during the term. Intended for non-science majors; science and Astronomy majors should take ASTR 210. Credit not given to students with credit in ASTR 100 or 210 or GEOL 116; or in PHYS 212 or higher-level Physics course. Students with credit in PHYS 211 are encouraged to take ASTR 210. Prerequisite: Credit or concurrent enrollment in a Quantitative Reasoning I course.

This course satisfies the General Education Criteria for a Physical Sciences, and Quant Reasoning II course.

ASTR 121 and ASTR 122 cover the same topics as ASTR 100, but the material and topics are covered in much more depth over two semesters instead of one. ASTR 121 and ASTR 122 are independent offerings and can be taken in any order. While ASTR 121 and ASTR 122 are for non-science majors, problems solving with basic algebra is required. Science and astronomy majors should take ASTR 210. Students must register for one discussion and one lecture section.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 37115 | discussion-recitation | AD1 | 10:00 AM - 10:50 AM | R | room 122 David Kinley Hall | Sutton, E; Bain, S |

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| 37115: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 37117 | discussion-recitation | AD2 | 10:00 AM - 10:50 AM | R | room 123 David Kinley Hall | Sutton, E; Chen, R |
| 37117: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 37118 | discussion-recitation | AD3 | 10:00 AM - 10:50 AM | R | room 323 Education Bldg | Sutton, E; Lowry, J |
| 37118: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 37120 | discussion-recitation | AD4 | 11:00 AM - 11:50 AM | R | room 122 David Kinley Hall | Sutton, E; Bain, S |
| 37120: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 37122 | discussion-recitation | AD5 | 11:00 AM - 11:50 AM | R | room 123 David Kinley Hall | Sutton, E; Chen, R |
| 37122: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 37124 | discussion-recitation | AD6 | 11:00 AM - 11:50 AM | R | room 323 Education Bldg | Sutton, E; Lowry, J |
| 37124: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 36991 | discussion-recitation | AD7 | 11:00 AM - 11:50 AM | R | room 143 Henry Administration Bldg | Sutton, E |
| 36991: Discovery, Physical Sciences, and Quant Reasoning II course.First Year Discovery Program Course. Registration restricted to freshmen. Students should enroll in only one Discovery course. Students who enroll in more than one Discovery course may be dropped from the additional Discovery Courses. For course descriptions, see the Discovery Program booklet. | | | | | | |
| 36993 | discussion-recitation | AD8 | 12:00 PM - 12:50 PM | R | room 122 David Kinley Hall | Sutton, E; Bain, S |
| 36993: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 36996 | discussion-recitation | AD9 | 12:00 PM - 12:50 PM | R | room 123 David Kinley Hall | Sutton, E; Chen, R |
| 36996: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 39751 | discussion-recitation | ADA | 12:00 PM - 12:50 PM | R | room 323 Education Bldg | Sutton, E; Lowry, J |
| 39751: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 37107 | lecture | AL1 | 01:30 PM - 02:20 PM | TR | room 100 Gregory Hall | Sutton, E |
| 37107: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 38969 | discussion-recitation | L52 | 11:00 AM - 11:50 AM | R | room 122 David Kinley Hall | Sutton, E; Bain, S |
| 38969: Physical Sciences, and Quant Reasoning II course.Advisor Approval RequiredThis is a first year LAS Learning Communities Program section. Priority registration will be given to Freshmen participants in the LAS Learning Community Program with some seats available for any student. For a list of LAS Learning Communities see the front portion of this timetable. | | | | | | |

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|---|---|---|---|---|---|---|
| 38988 | lecture | LC | 01:30 PM - 02:20 PM | TR | room 100 Gregory Hall | Sutton, E |
| 38988: Physical Sciences, and Quant Reasoning II course.Advisor Approval RequiredThis is a first year LAS Learning Communities Program section. Priority registration will be given to Freshmen participants in the LAS Learning Community Program with some seats available for any student. For a list of LAS Learning Communities see the front portion of this timetable. | | | | | | |

## 122 ***Stars and Galaxies*** Credit: 3 hours.

(ASTR 122) Introduction to astrophysical objects and phenomena beyond the solar system, and the governing basic physical principles; galaxies, quasars, and structure of the universe; cosmology; the Milky Way; the interstellar medium and the birth of stars; distances, motions, radiation, structure, evolution, and death of stars, including neutron stars and black holes. Emphasis will be placed on problem-solving and scientific methods. Two lectures and one discussion each week, and observing sessions during the term. Intended for non-science majors; science and Astronomy majors should take ASTR 210. Credit not given to students with credit in ASTR 100 or 210, or in PHYS 212 or higher-level physics course. Students with credit in PHYS 211 are encouraged to take ASTR 210. Prerequisite: Credit or concurrent enrollment in a Quantitative Reasoning I course.

This course satisfies the General Education Criteria for a Physical Sciences, and Quant Reasoning II course.

ASTR 121 and ASTR 122 cover the same topics as ASTR 100, but the material and topics are covered in much more depth over two semesters instead of one. ASTR 121 and ASTR 122 are independent offerings and can be taken in any order. While ASTR 121 and ASTR 122 are for non-science majors, problems solving with basic algebra is required. Science and astronomy majors should take ASTR 210.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 39753 | discussion-recitation | AD1 | 10:00 AM - 10:50 AM | R | room 310 David Kinley Hall | Brunner, R; Hepler, N |
| 39753: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 39754 | discussion-recitation | AD2 | 10:00 AM - 10:50 AM | R | room 307 David Kinley Hall | Brunner, R; Athanassiadou, T |
| 39754: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 39755 | discussion-recitation | AD3 | 11:00 AM - 11:50 AM | R | room 310 David Kinley Hall | Brunner, R; Hepler, N |
| 39755: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 39756 | discussion-recitation | AD4 | 11:00 AM - 11:50 AM | R | room 222 David Kinley Hall | Brunner, R; Athanassiadou, T |
| 39756: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 39757 | discussion-recitation | AD5 | 11:00 AM - 11:50 AM | R | room 142 Henry Administration Bldg | Brunner, R |
| 39757: Discovery, Physical Sciences, and Quant Reasoning II course.First Year Discovery Program Course. Registration restricted to freshmen. Students should enroll in only one Discovery course. Students who enroll in more than one Discovery course may be dropped from the additional Discovery Courses. For course descriptions, see the Discovery Program booklet. | | | | | | |
| 39748 | discussion-recitation | AD6 | 12:00 PM - 12:50 PM | R | room 312 David Kinley Hall | Brunner, R; Hepler, N |
| 39748: Physical Sciences, and Quant Reasoning II course. | | | | | | |

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|---|---|---|---|---|---|---|
| 39749 | discussion-recitation | AD7 | 12:00 PM - 12:50 PM | R | room 222 David Kinley Hall | Brunner, R; Athanassiadou, T |
| 39749: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 39752 | lecture | AL1 | 02:00 PM - 02:50 PM | TR | room 228 Natural History Bldg | Brunner, R |
| 39752: Physical Sciences, and Quant Reasoning II course. | | | | | | |
| 39750 | lecture | H | 10:00 AM - 10:50 AM | MWF | room 212 1205 W Oregon | Kaler, J |
| 39750: Camp Honors/Chanc Schol, Physical Sciences, and Quant Reasoning II course.For Chancellor's Scholars; others may enroll with consent of instructor and Director of the Campus Honors Program. | | | | | | |

199 ***Undergraduate Open Seminar*** Credit: 1 to 5 hours.
(ASTR 199) May be repeated. Approved for both letter and S/U grading.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 10395 | independent study | | ARRANGED | | | |
| 10395: Instructor Approval Required | | | | | | |
| 31282 | conference | RI | 04:00 PM - 04:50 PM | W | room 134 Astronomy Bldg | Snyder, L |
| 31282: 1 hoursTOPIC: Research Introduction for undergraduates. This course is for first and second year undergraduates interested in research work of faculty in Astronomy and Astrophysics. | | | | | | |
| 31284 | lecture-discussion | U12 | 01:00 PM - 01:50 PM | MW | room 65 Allen Residence Hall | Schein, H; Rosen, S |
| 31284: 1 hoursTopic: Science and Society. S/U graded credit. For Unit One students. Second 8 week course.Meets 18-Oct-04 - 10-Dec-04. | | | | | | |

210 ***General Astronomy*** Credit: 3 hours.
(ASTR 210) Survey of modern astronomy for students with background in physics. Topics include: the solar system; nature and evolution of stars; white dwarfs, neutron stars, and black holes; galaxies, quasars and dark matter; large scale structure of the universe; the Big Bang; and Inflation. Emphasis will be on the physical principles underlying the astronomical phenomena. Credit is not given to students who have credit in ASTR 100 or in ASTR 121 and 122. Prerequisite: Credit or concurrent registration in PHYS 212.

This course satisfies the General Education Criteria for a Physical Sciences course.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 30268 | lecture | 1 | 03:00 PM - 03:50 PM | MWF | room 106B3 Engineering Hall | Fields, B |
| 30268: Physical Sciences course. | | | | | | |

230 ***Extraterrestrial Life*** Credit: 3 hours.
(ASTR 230) Scientific discussion of the search for extraterrestrial life. Topics include: cosmic evolution (protons to heavy elements to molecules); terrestrial evolution (chemical, biological, and cultural); high technology searches for extraterrestrial life in the solar system (Mars, Venus, outer planets); and beyond the solar system (Drake equation and current SETI projects). Prerequisite: ASTR 100, 121, 122, or 210; or consent of instructor.

This course satisfies the General Education Criteria for a Physical Sciences course.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 40327 | lecture | 1 | 02:00 PM - 02:50 PM | MWF | room 106B1 Engineering Hall | Looney, L |
| 40327: Physical Sciences course. | | | | | | |

390 ***Individual Study*** Credit: 1 to 4 hours.
(ASTR 290) Individual study at an advanced undergraduate level. Prerequisite: Consent of advisor and of staff member who supervises the work.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 10396 | independent study | | ARRANGED | | | |
| 10396: Instructor Approval Required | | | | | | |

401 ***Scientific Writing for Astro*** Credit: 1 hours.
(ASTR 301) Development of journal-style writing skills. Papers written in accordance with the Astrophysical Journal Manual of Style on topics approved by the instructor. Emphasis on developing adequate and critical coverage of the topic, brevity compatible with clarity, and effective presentation. Proper referencing, footnotes, and bibliography are covered. 1 undergraduate hour. Prerequisite: Concurrent enrollment in a designated 400-level astronomy course.

This course satisfies the General Education Criteria for a Advanced Composition course.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 30271 | conference | C1 | ARRANGED | | | Chu, Y |
| 30271: Advanced Composition course. | | | | | | |
| 30271: Composition II course meeting with ASTR 404. | | | | | | |

404 ***Stellar Astrophysics*** Credit: 3 hours.
(ASTR 304) Introduction to astrophysical problems, with emphasis on underlying physical principles; includes the nature of stars, equations of state, stellar energy generation, stellar structure and evolution, astrophysical neutrinos, binary stars, white dwarfs, neutron stars and pulsars, and novae and supernovae. 3 undergraduate hours. Graduate students in Astronomy will not receive credit in ASTR 404. Prerequisite: PHYS 213 or 214; or consent of instructor.

| CRN | Type | Section | Time | Days | Location | Instructor |
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|---|---|---|---|---|---|---|
| 39758 | lecture | 1 | 01:00 PM - 01:50 PM | MWF | room 134 Astronomy Bldg | Chu, Y |

452 ***Introduction to Geophysics*** Credit: 4 hours.
(ASTR 350) Same as GEOL 452. See GEOL 452.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 37578 | lecture | A | 09:00 AM - 09:50 AM | MWF | room 258 Natural History Bldg | Hsui, A |

502 ***Theory Diffuse Matter Dynamics*** Credit: 4 hours.
(ASTR 402) Astrophysical magnetohydrodynamics (MHD) is developed and applied to the interstellar medium; formation, equilibrium and collapse of interstellar clouds; star formation; shock waves and ionization fronts; dynamics of stellar systems and spiral structure; Newtonian cosmology and galaxy formation in the early universe; cosmic electrodynamics. Prerequisite: PHYS 436, 427, and 486; or consent of instructor.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 39759 | lecture | 1 | 01:00 PM - 02:20 PM | TR | room 134 Astronomy Bldg | Mouschovias, T |

590 ***Individual Study*** Credit: 2 to 8 hours.
(ASTR 490) Individual study or nonthesis research. May be repeated to a maximum of 16 hours. Prerequisite: Consent of adviser and of staff member who supervises the work.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 10399 | independent study | | ARRANGED | | | |
| 10399: Instructor Approval Required | | | | | | |

599 ***Thesis Research*** Credit: 0 to 16 hours.
(ASTR 499) Approved for S/U grading only.

| CRN | Type | Section | Time | Days | Location | Instructor |
|---|---|---|---|---|---|---|
| 10387 | independent study | | ARRANGED | | | |
| 10387: Instructor Approval Required | | | | | | |