Course Organization and Goals

Instructors:

Roger K. Ulrich, 825-4270, Office: 3-431 PAB, Professor
Teaching Assistant, Yangxin Zhou, 5-3403, 6-130T Knudsen

- The course grade will be based on eight quizzes from Cosmic Perspectives having a total weight equal to half a midterm, unannounced pop quizzes in the last 15 minutes of class time having a total weight equal to half a midterm, two midterms and a final with the final having equal weight as the two midterms. The number and dates of the pop quizzes is at the instructor’s discretion. One midterm may be skipped with prior permission from the instructor or for medical reasons with subsequent medical documentation.

- The midterms and final will be in a multiple choice format.

- The course will be based on the textbook:

  Cosmic Perspective: Stars, Galaxies & Cosmology, Fourth Edition by Bennett et al.,
  Lecture Notes by R.K. Ulrich, Distributed through the class web site.

- Course hours:

  Lectures TuTh 11 to 12:15 in Kinsey Pavillion 1240
  Discussions – Th 1 PM, Hershey 1651; Th 2 PM, Boelter 5280; Tu 1 PM, Boelter 5280
  Office Hours, R.K. Ulrich – Monday, Wednesday, 2 PM, 3-431 PAB or by appointment.
  Final Exam Wednesday, June 14, 11:30 am to 2:30 pm.

- This course will provide a generally non-mathematical but physical introduction to stars and their last stages of life with an emphasis on the violent endings which occur.

- The concepts of general relativity leading to the formation of Black Holes will be developed qualitatively and the properties of space-time near Black Holes will be described.
Web Sites Information: www.physics.ucla.edu and www.masteringastronomy.com

The class notes can be found at: http://www.physics.ucla.edu/class/06S/4_ULRICH/notes/index.html

Feel free to print these notes for your own use but please do not copy or repost them. A good plan is to print them single sided and use the backs for additional notes you take during the lectures. I post these notes as a supplement to the lectures, not a replacement. In the event that class attendance drops, I will discontinue the posting of the notes.

A quiz tool is provided by the textbook publisher (www.masteringastronomy.com). You need to use the access number provided in the text. If you purchased a used text, please purchase access to the web site since the course quizzes, midterms and final exam all draw from the quiz banks available on this web site. If you do not take the masteringastronomy quizzes, you will be at a substantial disadvantage for the regular exams and probably receive a poor grade in the class. Although the quiz site allows you to enroll in this class and provides a grading system, I will not be using grades from this site. Instead, questions from the publisher web site are collected and modified to create the class quizzes which are due Tuesdays until after the second midterm and then due Thursdays.

The quizzes can be taken only once and must be started before the due time. If your quiz taking session is ended due to a computer problem or other human error, you will not be able to complete the quiz. Please let me know what happened in such cases and I may conclude that you should be excused from the quiz. After the due time for the quizzes, I will post the answer key so it is not possible to make up missing quizzes.
Course Schedule — Part 1

Reading: Bennett *et al.* Preface and Chapters 1, 2, S1, 4 to 7; Ulrich, Note Sets 1 to 7

Class Meeting Number. Date — Lecture Subject

1. Apr. 4 — General introduction, Orientation to our place in the universe.

2. Apr. 6 — Geometry of the sky and solar system, distances to stars.

3. Apr. 11 — Measurement of time. What is the nature of time? Quiz 1 due 11 PM, Covers Chapters 1 and 2.

4. Apr. 13 — Energy and atoms. What are the natures of temperature, density and pressure?

5. Apr. 18 — Kepler’s laws of planetary motion and their relationship to the law of gravitation. Quiz 2 due 11 PM. Covers Chapters S1 and 4

6. Apr. 20 — The nature of light and energy in the universe.

7. Apr. 25 — Telescopes and the measurement of the universe. Quiz 3 due 11 PM, Covers Chapters 5 to 7.

Apr. 27 — **Midterm 1 covering up to lecture 7**
Course Schedule — Part 2

Reading: Bennett et al. Chapters S2, S3, S4, 15 to 17; Ulrich, Note Sets 8 to 14

Class Meeting Number. Date — Lecture Subject

8. May 2 — Space and time.


10. May 9 — Building Blocks of the Universe. Quiz 4 due 11 PM, Covers Chapters S2 and S3.


12. May 16 — What are stars. Quiz 5 due 11 PM, Covers Chapters S4 and 15.


14. May 23 — The ending points of star lives, supernovae, neutron stars, black holes. Quiz 6 due 11 PM. Covers Chapters 16 and 17

May 25 — Midterm 2 covering lectures 8 to 14
Course Schedule — Part 3

Reading: Bennett et al. Chaps. 19 to 23; Ulrich, Note Sets 15 to 18

Class Meeting Number. Date — Lecture Subject


16. June 1 — Our galaxy and Galaxy Evolution, Missing matter throughout the universe. Quiz 7 due 11 PM, Covers Chapters 18 to 20


18. June 8 — Dark Matter and the evolution of the universe, the beginning of time. Quiz 8 due 11 PM, Covers Chapters 21 to 23