

ASTRONOMY 301 – FALL 2004

INTRODUCTION TO ASTRONOMY

Unique No. 47785

Last Updated: September 2, 2004

Course Web Page:

http://www.as.utexas.edu/astronomy/education/fall04/komatsu/komatsu_301.html

Instructor

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Hours: Tuesdays 4:45—5:30pm

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Teaching Assistant

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CLASS & HELP SESSIONS

- Class meets at WEL 3.502 on Tuesdays & Thursdays, 2:00—3:30pm.
- Help sessions will be held on Tuesdays 5:30—6:30pm at RLM 15.216B. The first help session will take place on September 7.

COURSE OBJECTIVES

This course provides an overview of Astronomy for non-science majors. This course may be regarded as a guided tour of cosmos: we will meet on the Earth, and then I will take you to our Solar System, the Milky Way, other galaxies, and beyond. This is also a tour of the whole history of cosmos: you will be taken to a time-trip to the very beginning of the Universe. We will spend almost equal time at each stop-over during this trip, but I plan to spend more time at the station, “how the Universe works”; that is, the history and dynamics of the Universe as a whole (Part VI, “GALAXIES AND BEYOND”, of the text).

PREREQUISITES

No one likes a guided tour with too complicated explanations, which often obscure the fun part of the tour. Since this is a course for non-science majors, you are not required to be familiar with math and physics. **HOWEVER, YOU ARE REQUIRED TO BE ENTHUSIASTIC TO LEARN ABOUT THE UNIVERSE.** You buy a ticket to a trip because you are interested, right? It's the same. Serious learners only, please. The homework assignments involve some math, but a step-by-step instruction to how to solve math in the assignments will be provided in the class.

TEXT

COSMIC PERSPECTIVE, 3rd EDITION

Authors: Bennett, Donahue, Schneider and Voit

If you buy a new textbook, then you automatically get a subscription to their online pages. If you buy a used book, you can buy an online subscription directly from the publisher (just go to their webpage).

Please note: The organization of the lecture does not always follow that of the text.

HOMEWORK & EXAMS

- There will about 6 homework assignments. These will be written assignments and reports. All written assignments must be in computer-generated format - no handwritten work. Some of the assignments will involve problem-solving and math. Homework will be graded on presentation, style, and content. Homework assignments will not be counted after the due date. Homework can be done in groups (and I encourage this) but you must hand in your own work. Homeworks that are duplicates will have severe penalties. You may get help on homework (or anything else) from the professor or TA during office hours or by appointment.
- The midterm and final will consist of multiple choice, short answer and essay answer. The in-class exams will be short (roughly 20 minutes) quizzes testing conceptual understanding of the basic materials covered during the course. The penalty for cheating on an exam is a score of zero for the exam, and the zero will be included to calculate the final grade.

GRADING

The students final grade will consists of:

25% homework

25% midterm

25% final

25% in-class exams and class participation

There will be make-up examinations **ONLY** for students with valid excuses. The lowest quiz score will be dropped (so you can miss one quiz), otherwise no make-up quizzes unless you have a valid excuse. Also the lowest homework will be dropped.

The following grading scale will be used: 90+=A; 80-89=B; 70-79=C; 60-69=D. Any average below 60 is failing.

FYI: LAB COURSE

For those who are interested in doing some lab astronomy, there is a lab course:

AST101L - FALL2004 – ASTRONOMY DISCOVERY LAB

Class meets at RLM 13.132 on either of

Tuesdays	12:30—1:30pm	Unique No. 47800	Dr. Dan Jaffe
Wednesdays	11:00—12:00pm	Unique No. 47795	Dr. Eiichiro Komatsu
Wednesdays	2:00—3:00pm	Unique No. 47805	Dr. Eiichiro Komatsu

This course will fulfill lab requirement for those who will need it. If you need to get more information, please contact **Stephanie Crouch** (RLM 15.202AA; (512)471-3350). You may also get some information from the course web site, http://www.as.utexas.edu/astronomy/education/fall04/jaffe/jaffe_1011.html

COURSE SCHEDULE

Aug 26 Introduction

Briefing, “Welcome to the Cosmic Tour: Some Guide Lines” (Part I)

Aug 31 Our Place in the Universe (Chap 1)
Sep 2 Understand the sky we see from the Earth (Chap 2; S1)

Departure, “Before Going to Deep in Space...” (Part II)

Sep 7 Matter and Energy (Chap 4)
Sep 9 Laws of Motion (Chap 5) Quiz#1
Sep 14 Understand Light (Chap 6)

Station #1, “The Solar System” (Part III)

Sep 16 Welcome to the Solar System (Chap 8) Homework#1 due
Sep 21 Formation of the Solar System (Chap 9) Quiz#2
Sep 23 Extrasolar Planets (Chap 9)

Station #2, “Stars” (Part IV,V)

Sep 28 Basic Physics (S4)
Sep 30 The Sun (Chap 15) Homework#2 due
Oct 5 Properties of Stars (Chap 16) Quiz#3
Oct 7 Star Stuff (Chap 17)

Station #3, “Einstein’s World” (Part IV,V)

Oct 12 Space, Time, and Gravity (S2,S3)
Oct 14 The Bizarre Stellar Graveyard (Chap 18) Homework#3 due

Oct 19 IN-CLASS MID-TERM EXAM (Chap 1-2, 4-6, 8-9, 15-18, S1-4)

Station #4, “The Milky Way” (Part VI)

Oct 21 Our Galaxy (Chap 19)

Station #5, “Galaxies” (Part VI)

Oct 26 Galaxies (Chap 20)

Oct 28 Galaxy Evolution (Chap 21) Quiz#4

Station #6, “Cosmic Web” (Part VI)

Nov 2 Clusters of Galaxies and Beyond (Chap 22) Homework#4 due

Nov 4 Dark Matter and Dark Energy (Chap 22)

Station #7, “Cosmic History” (Part VI)

Nov 9 An Overview (Chap 22,23) Quiz#5

Nov 11 The Big Bang (Chap 23)

Nov 16 The Fate of the Universe (Chap 22) Homework#5 due

Nov 18 Inflation – before the Big Bang (Chap 23) Quiz#6

Terminal, “Astronomy is Fun” (Part I,II)

Nov 20 The Science of Astronomy (Chap 3)

Nov 25 *Thanks Giving Holiday (No Class)*

Nov 30 Telescopes (Chap 7) Homework#6 due

Dec 2 IN-CLASS FINAL EXAM (Chap 3, 7, 19-23)