

AS 701 - INTRODUCTION TO ASTROPHYSICS

COURSE OVERVIEW - FALL 2000

CATALOG COURSE DESCRIPTION:

This course is an introduction to astronomical and astrophysical topics and nomenclature, including coordinate systems, celestial orbits, radiation, stars, stellar structure, stellar evolution, clusters of stars, galactic components, galactic structure, galaxy types, active galaxies and cosmology.

COURSE STRUCTURE AND PHILOSOPHY:

The course is intended to provide students with a setting in which they can survey the entire field of astronomy and astrophysics. It is aimed at filling in gaps in the backgrounds of students with an undergraduate astronomy degree and in providing those with a physics degree the opportunity to become acquainted with the major astronomical and astrophysical ideas, problems and terminology. The course will be conducted largely in a problem solving format. Each week, reading material in the text will be assigned. Brief lectures will be given to clarify particularly subtle points. Much of the class time will be spent in working through problems which will be assigned from the text as well as handed out in class.

CLASS TIMES:

Tuesdays 3:30 - 5:00 PM and Fridays 9:30 - 11:00 AM, CAS Room 500

INSTRUCTOR:

Professor Kenneth Brecher, AS Room 518 (enter through Room 512), x 3423

OFFICE HOURS:

Wednesdays 12:30 - 2:00 PM and Fridays, 11:00 AM - 12:30 PM or by appointment

TEXT:

The textbook is An Introduction to Modern Astrophysics by Bradley W. Carroll and Dale A. Ostlie (Addison-Wesley. Pub., 1996). The associated Web site is at <http://astrophysics.weber.edu/>. The book is available at the BU bookstore. A copy of the text along with other useful references will be put on reserve in the Astronomy Department Library. Handouts will also be distributed throughout the semester.

GRADING:

The course grade will be heavily based on the problem sets and on class preparation and presentations, so active participation in class is vital. There will be both a midterm and a final examination. The relative weighting of the course components is: 50% homework and class participation; 20% midterm examination; 30% final examination.

AS 701 COURSE SCHEDULE - FALL 2000

DATE(S)	TOPICS	TEXT CHAPTERS
Sept. 5	Course Overview, Celestial Sphere, Diagnostic	Preface, 1
Sept. 8	Kepler's Laws, Virial Theorem	2
Sept. 12	Light	3
Sept. 15	Special Relativity	4
Sept. 19	Interaction of light and matter	5
Sept. 22	Telescopes	6
Sept. 26	Binary stars	7
Sept. 29	Stellar spectra	8
Oct. 3	Stellar atmospheres	9
Oct. 6	Stellar interiors, Sun10,	11
Oct. 13	Stellar interiors, Sun10,	11
Oct. 20	Star Formation	12
Oct. 22	Stellar Death	13
Oct. 24	Stellar Pulsation	14
Oct. 27	Midterm Examination	1 - 14
Oct. 31	Degenerate stars	15
Nov. 3	Black holes	16
Nov. 7	Close binary star systems	17
Nov. 14	Solar system	18, 19
Nov. 17	Solar system	20, 21
Nov. 21	Milky way galaxy	22
Nov. 28	Galaxies	23
Dec. 1	Galactic evolution	24
Dec. 5	Structure in the universe	25
Dec. 8	Active galaxies	26
Dec. 12	Cosmology	27
Dec. 14	Cosmology	28
Dec. 18	Final Examination (9:00 - 11:00 AM)	1 - 28

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