

AST 713

Astrophysics (I)

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Class time: T 2:30-5:20 pm

Textbook: I. Astrophysics in a Nutshell (Dan Maoz)
 II. Radiative Processes in Astrophysics
 (George B. Rybicki & Alan P. Lightman)
 Office hours: M 2:30-3:30 pm, BPB Rm 238

Week	Date	Subject	Reading
1	Aug. 26	Introduction	I. Ch.1; II. Ch.1.1-1.4
2	Sep. 2	Stellar Astronomy	I. Ch.2; II. Ch. 1.5
3	Sep. 9	Stellar Physics	I. Ch.3
4	Sep. 16	Stellar Evolution	I. Ch.4
5	Sep. 23	Star Formation	I. Ch.5
6	Sep. 30	Galaxies	I. Ch.6
7	Oct. 7	Cosmology (I)	I. Ch.7-8
8	Oct. 14	Cosmology (II)	I. Ch.8-9
9	Oct. 21	Mid-Term Exam	
9	Oct. 28	Radiation fields	II. Ch.2
10	Nov. 4	Bremsstrahlung	II. Ch.5
11	Nov. 11	Veteran Recess	
12	Nov. 18	Synchrotron	II. Ch.6
13	Nov. 25	Inverse Compton scattering	II. Ch.7
14	Dec. 2	Student Presentation	
15	Dec. 9	Final Exam	

Course description / grading policies:

- This is a class on fundamental astrophysics, designed for MS and PhD students for astrophysics and physics majors. The first half of the course is an overview of astrophysics, including stellar astronomy/physics, stellar evolution, galaxies and cosmology. The second half of the course includes the theory of electromagnetic radiation, various radiative mechanisms and their applications to astrophysical phenomena. Requirements: upper level undergraduate physics, including intermediate electromagnetic theory, introductory quantum mechanics, special relativity, and some statistical mechanics. Recommended for all astrophysics/physics major graduate students. 3 credits.
- Mid-term exam is on Oct. 21. There are 5 problems for 25 pts, 5 pts each. No printed materials are allowed during the exam.

- Final exam is on Dec. 9. There are 5 problems for 25 pts, 5 pts each. No printed materials are allowed during the exam.
- There will be 6 after-class problems during the semester for 30 pts, 5 pts each. You may use any available materials to solve the problems. Students may discuss the solutions, but it should be clearly stated.
- Each student will give 20-minute presentation at the end of semester. The topic could range from reviews of a sub-field, personal research projects and research plans, or exciting new development in a particular field in astrophysics. 20 pts will be assigned for the presentation.
- Final Letter grades will be assigned according to the numerical scores (100 total).

Other information:

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Disability Resource Center (DRC) – *The Office of the Executive Vice President and Provost and Faculty Senate have endorsed the statement below to be included in all course syllabi.* It is important to know that over two-thirds of the students in the DRC reported that the syllabus statement, often read aloud by the faculty during class, directed them to the DRC office.

The Disability Resource Center (DRC) coordinates all academic accommodations for students with documented disabilities. The DRC is the official office to review and house disability documentation for students, and to provide them with an official Academic Accommodation Plan to present to the faculty if an accommodation is warranted. Faculty should not provide students accommodations without being in receipt of this plan.

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