

PHYSICS 380--ASTROPHYSICS

Fall 2011

Instructor: Dr. David Slavsky

Class Meetings: T, Th at 2:30-3:45 in Cudahy Science 314.

Office Hours: Each day after class or by appointment.

Contact Information: Cudahy 420, phone: 773-508-8352, fax: 773-508-3506, email: dslavsk@luc.edu

Text: An Introduction to Modern Astrophysics, 2nd Edition, by Carroll and Ostlie.

Prerequisites: Junior standing in the physics major.

Course Website: <http://www.luc.edu/faculty/dslavsk/courses/phys380/phys380-2011.shtml>

Course Description

The goal of astrophysics is to understand the properties of the universe through the study of the relevant underlying physics. As you have no doubt surmised from the thickness of your text, the range of this study is quite extensive, and it is simply not possible to cover every topic of interest with any depth in a one semester course. (The ~~doorstop~~ text is designed for a two semester course in astrophysics.) Rather than try to touch upon every area of astrophysics, we will focus on those topics that will provide the most secure foundation for a future study of the subject. Thus, the course will focus (almost exclusively) on the basic tools of astrophysics and stellar astrophysics, focusing on stellar energy production, energy transfer in stars, and formation and evolution of stars. In terms of coverage, I hope to complete Chs 1-3, 5, and 7-17 (or as far as we can reasonably get without sacrificing understanding for velocity).

However, since this approach omits significant topics of interest (solar system, galaxies, extra-galactic astronomy, and cosmology), the last two weeks of the course will be devoted to special topics chosen by each of you. (This will be described more fully in the next section.)

Grading

Your grade in the course will be determined by grades on homework assignments, one in class presentation, and a final exam.

Homework will be assigned each week. You may work together on the homework but the work you submit must represent your own independent effort. Homeworks must be submitted at the beginning of class on the due date. In aggregate, homework will count for 40% of the class grade. It will be highly appreciated if your homework is stapled together and you write on only one side of the sheet to facilitate my grading.

Class Presentations will take place on the last four regularly scheduled class days of the semester (Nov. 29, Dec. 1, 6, and 8). Around mid-term you should each choose one

chapter of the text that we will not cover in class, and present the most important material in that chapter to the rest of the class. You should start making these decisions around mid-term, and I will work with each of you individually on your chapters. The class presentation will represent 30% of your class grade, and will be based on the clarity of your presentation, how well you have chosen the most significant topics in the chapter, how well you field questions from the class, and how well you stand up to my withering barrage of criticisms. OK, we'll omit that last one.

The **Final Exam** will be given in the class room on Thursday morning, Dec. 15 at 9 am. The final will include all the material completed in class up to the Thanksgiving break (i.e., the material presented in your class presentations will not be on the final). Toward the end of the semester I will give you a number of potential exam questions; the final will be a subset of those questions. The final will count for 30% of your course grade.

Academic Dishonesty

I am very excited to embark on this study with each of you, please do not degrade the experience by cheating. I want you to work together on homeworks, but the work you submit should be your own. In other words, if I put two assignments next to each other, they should not be identical or essentially identical. The first instance of academic dishonesty on a homework assignment will result in the grade of zero on that assignment, a second instance will result in a grade of F for the course. Engaging in academic dishonesty on the final (including, but not limited to) copying from another paper, using crib notes or transferring information to another student will result in an F in the course. In all cases of academic dishonesty, I will send copies of the relevant material to the Dean's Office for inclusion in your permanent Loyola file.

General Comments

There will be no class on Sept. 29 (religious holiday).