Astronomy 112: Physics of Stars

Professor Jonathan Fortney

Spring Quarter 2017, MWF: 9:20-10:25 a.m., Physical Sciences 130

This class is designed for physics and astrophysics majors in their junior or senior year. Prerequisites are Mathematics 22 or 23A, Physics 5B or 6B, and Physics 102. The course will show how known physical principles, in conjunction with astronomical observations, can be used to extract information about the structure and evolution of stars. We will first discuss observational properties of stars, and the astronomical jargon used to discuss stars, before moving on to the relevant physics of stellar interiors and atmospheres. You may not learn a lot of new physics in class, but stellar astrophysics brings together a wide range of seemingly disparate areas of physics, all in one place, so we will pull from many areas of your previous studies. Once all the pieces have been assembled, we will move on to how we can learn how stars evolve with time.

Week	Day			
1	1	M	3-Apr	
	2	W	5-Apr	
	3	F	7-Apr	
2	4	M	10-Apr	
	5	W	12-Apr	PS1
	6	F	14-Apr	
3	7	M	17-Apr	
	8	W	19-Apr	PS2
	9	F	21-Apr	**Midterm 1**
4	10	M	24-Apr	
	11	W	26-Apr	
	12	F	28-Apr	
5	13	M	1-May	
	14	W	3-May	
	15	F	5-May	
6	16	M	8-May	PS3
	17	W	10-May	
	18	F	12-May	
7	19	M	15-May	
	20	W	17-May	PS4
	21	F	19-May	
8	22	M	22-May	**Midterm 2**
	23	W	24-May	
	24	F	26-May	PS5
9		M	29-May	
	25	W	31-May	
	26	F	2-Jun	
10	27	M	5-Jun	
	28	W	7-Jun	PS6
	29	F	9-Jun	

Final Exam: Monday, June 12, 4-7 PM

Required Textbook: Dina Prialnik, *An Introduction to the Theory of Stellar Structure and Evolution*, Cambridge University Press, 2nd edition, 2010. The class structure will generally closely follow the flow of the book. It is also on reserve at the library, along with two other books at a similar level.

Contact info for Professor Fortney:
Web: www.ucolick.org/~jfortney/112.htm -- although e-mail will be the primary communication method
Office hours Tuesdays, 1-2:30 PM, CfAO 205, or by appointment
E-mail: jfortney@ucsc.edu, Phone: 9-1312

Contact info for TA Matt Siebert:
Office hours Monday and Wednesday, 10:30-11:30 AM, ISB 293, siebertmatt@gmail.com

Course Requirements and Grade Fraction:

2 in-class exams, open notes/book	15% (#1) and 20% (#2)
1 final exam, open notes/book	25%
6 problems sets -- due at the *start of class* on the due date	40%
Can also be turned at by the *end of class* to Matt's mailbox in ISB 260	
Late work will only be accepted in exceptional circumstances	

Other Things:

This class will be graded on a curve, so I cannot estimate what percentage you will need for a given grade. Do your best. Historically, most students have earned A and B grades.

It is OK, and encouraged, to work together on problem sets, but you *must* write up and turn in your own work. Please the see the official "Academic Misconduct Policy for Undergraduates" at: https://www.ue.ucsc.edu/academic_misconduct