

PHYS4000 Introduction to Astrophysics (Spring 2017)

Class Schedule as of April 19, 2017

Reading assignments from *Astrophysics in a Nutshell, 2e* (2016) by Dan Maoz

Homework assignments will be posted on the course web site and are due *in class* on the indicated date

Day	Date	Topics	Reading	Homework Due
Mon	16 Jan	No Classes: Martin Luther King Day	_____	
Wed	18 Jan	Introduction; Observing stars	Chapter One	
Fri	20 Jan	Review: Blackbody radiation	2.1	
Mon	23 Jan	Review: Two-body orbits	<i>Notes</i>	
Wed	25 Jan	Measuring stellar parameters	2.2	
Fri	27 Jan	Stellar distances; The Hertzsprung-Russell diagram	<i>Notes</i> ; 2.3	
Mon	30 Jan	No Class: APS Meeting	_____	
Wed	1 Feb	Review: Equations of state and the ideal gas	<i>Notes</i>	Assignment #1
Fri	3 Feb	Stellar hydrostatics and mass continuity	3.1, 3.2	
Mon	6 Feb	Energy transport and the equations of stellar structure	3.3-3.5	
Wed	8 Feb	Stellar composition and relations for the Main Sequence	3.6-3.8	
Fri	10 Feb	Nuclear energy as the power source for stars	<i>Notes</i> ; 3.9	
Mon	13 Feb	Quantum mechanical tunneling and the <i>pp</i> chain	<i>Notes</i> ; 3.9	
Wed	15 Feb	Nuclear reaction rates and laboratory nuclear astrophysics	<i>Notes</i> ; 3.10	
Fri	17 Feb	The Solar Neutrino Problem (and its solution)	<i>Notes</i>	Assignment #2
Mon	20 Feb	Stellar evolution and planetary nebulae	4.1	
Wed	22 Feb	White dwarf stars and the Chandrasekhar Mass	4.2	
Fri	24 Feb	No Class: Instructor out of town	_____	
Mon	27 Feb	Supernovae, neutron stars and pulsars	4.3, 4.4	
Wed	1 Mar	Introduction to General Relativity; Black holes	4.5	
Fri	3 Mar	Interacting binary star systems	4.6	Assignment #3

Day	Date	Topics	Reading	Homework Due
Mon	6 Mar	Cloud collapse and star formation	5.1	
Wed	8 Mar	H-II & H-I regions, and the interstellar medium	5.2, 5.3	
Fri	10 Mar	Midterm Examination	Thru Chapter Four	
13-17 Mar				
No Classes: Spring Break				
Mon	20 Mar	Detecting extrasolar planets: Doppler shifts & Transits	6.1.1, 6.1.2	
Wed	22 Mar	Detecting extrasolar planets: Imaging & Lensing	6.1.3, 6.1.4	
Fri	24 Mar	Planetary systems; Life beyond the Solar System	6.2-6.4	
Mon	27 Mar	Structure of the Milky Way	7.1.1	
Wed	29 Mar	Dark Matter: Astrophysical evidence and	7.1.1.5, 7.1.2, 7.1.3	
Fri	31 Mar	Dark Matter: Direct Detection	RMP 85(2013)1561	Assignment #4
Mon	3 Apr	Galaxy demographics	<i>Notes</i> ; 7.2	
Wed	5 Apr	Active galaxies and quasars	<i>Notes</i> ; 7.3	
Fri	7 Apr	Galaxy clusters and large scale structure of the Universe	<i>Notes</i> ; 7.4	
Mon	10 Apr	Olber's Paradox; Measuring the distance to galaxies	8.1, 8.2	
Wed	12 Apr	Hubble's Law and the age of the Universe	<i>Notes</i> ; 8.3, 8.4	
Fri	14 Apr	Newtonian Cosmology; Cosmic Microwave Background	<i>Notes</i> ; 9.4; 10.2	Assignment #5
Mon	17 Apr	Curvature and General Relativity	9.1	
Wed	19 Apr	The Friedmann Equations	9.2	
Fri	21 Apr	History and Future of the Universe; Dark Energy	9.3, 9.5	
Mon	24 Apr	The Hot Big Bang and Creation of the Light Elements	<i>Notes</i> ; 10.5	
Wed	26 Apr	The CMB Anisotropy and other relics of the Big Bang	10.3, 10.4, 10.6	
Fri	28 Apr	Final Exam Preparation: Course Review	All Chapters	Assignment #6
Mon	1 May	No Class: Instructor out of town		